138-456

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1888.

No. 215.

J. B. HURLBUT, APPELLANT,

vs.

JOHN J. SCHILLINGER, AND OLIVE G. SALISBURY, ADMINISTRATRIX OF ELMER J. SALISBURY, DECEASED.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF ILLINOIS.

FILED JANUARY 22, 1886.

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1 Pleas in the circuit court of the United States for the northern district of Illinois, held at the United States court-rooms in the city of Chicago, in the district aforesaid, before the Hon. Henry W. Blodgett, district judge of the United States for said northern district of Illinois, on Monday, the sixteenth day of November, in the adjourned October term of said court, in the year of our Lord one thousand eight hundred and eighty-five, and of our Independence the one hundred and tenth year.

WM. H. BRADLEY, *Clerk.*

NORTHERN DISTRICT OF ILLINOIS, *ss:*

JOHN J. SCHILLINGER and ELMER J. SALISBURY
vs.
J. B. HURLBUT. } In Chancery.

Be it remembered that on the nineteenth day of October, 1882, came the complainants, by their solicitors, and filed in the office of the clerk of the circuit court of the United States for the northern district of Illinois, at Chicago, in said district, their bond for costs and bill of complaint in said entitled cause; which said bond and bill are respectively in the words and figures following, to wit:

2 *Bond for Costs.*

UNITED STATES OF AMERICA,
Northern District of Illinois, } *ss:*

Circuit Court. October Term, A. D. 1882. In Equity.

JOHN J. SCHILLINGER and ELMER J. SALISBURY
vs.
J. B. HURLBUT.

I enter myself as security for costs in this cause and promise to pay all costs which may accrue to the opposite party in this action or to any of the officers of this court, and in default of payment by the plaintiffs of any costs ordered or adjudged to be paid by him I hereby agree and stipulate that execution may issue against my property for any costs taxed against pl'ffs. Dated this thirteenth day of October, A. D. 1882.

ELMER J. SALISBURY.

Endorsed: Filed Oct. 19, A. D. 1882. W. H. Bradley, clerk.

3 In the Circuit Court of the United States, Northern District of Illinois. In Equity.

To the honorable the judges of the circuit court of the United States for the northern district of Illinois:

John J. Schillinger, residing in the city of New York and a citizen of the State of New York, and Elmer J. Salisbury, residing at

Chicago and a citizen of the State of Illinois, bring this their bill of complaint against J. C. Hurlbut, defendant, residing and doing business at Chicago, in said northern district of Illinois, and citizen of the State of Illinois.

4 And thereupon your orators complain and say that heretofore and before the 19th day of July, 1870, your orator, J. J. Schillinger, being then a citizen of the United States, was the first and original inventor and discoverer of a certain new and useful improvement in concrete pavements, described in letters patent dated July 19th, 1870, hereinafter mentioned, and which was not known or used by others prior to his invention thereof, and which was not and had not been at the time of his application for letters patent therefor, as hereinafter mentioned, in public use or on sale with his consent and allowance for more than two years prior to his application for a patent therefor nor in such use any way.

That being so as aforesaid the first and original inventor and discoverer of the said improvement, and being a citizen of the United States, and being desirous to obtain an exclusive property in said invention or improvement within and for the United States, did, on the 19th day of July, 1870, upon due application therefor, and having in all things complied with the conditions and requirements of the acts of Congress in such case made and provided, obtain letters patent of the United States for said invention or improvement in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, bearing date the said 19th day of July, 1870, and numbered 105,599, which said letters patent are

5 now remaining of record in the Patent Office of the United States, by which said letters patent there was granted and secured or intended to be granted and secured to said Schillinger, his executors, administrators, or assigns, for the term of seventeen years from the said 19th day of July, 1870, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention or improvement described in said letters patent, and by virtue thereof he became and was the sole owner of all the rights and privileges granted and secured or intended to be granted and secured in and by said letters patent.

And your orators further show unto your honors that J. J. Schillinger, having, for good and lawful cause, after the issuing of the said letters patent as aforesaid, surrendered the same to the Commissioner of Patents, and having made due application therefor and having in all things complied with the requirements and conditions of the acts of Congress in such case made and provided, did, on the 2d day of May, 1871, obtain new letters patent numbered 4364 of reissued letters patent for the same invention on a corrected specification for the residue of the said term of seventeen years from the 19th day of July, 1870, which said reissued letters patent were issued in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, bearing date the said 2d day of May, 1871, and numbered 4364 of the reissued letters patent, and

6 which said reissued letters patent are now remaining on record in the Patent Office of the United States, as by said letters patent or a duly authenticated copy thereof in court ready to be produced will fully and at large appear.

And your orators further show that by reason of the said reissued letters patent your orators *has* been, ever since the issuing thereof as aforesaid, and are exclusively entitled to use, exercise, and enjoy all the exclusive rights, privileges, profits, and advantages granted and secured or intended to be granted and secured, in and by said reissued letters patent, for and during the term of years in said reissued letters patent mentioned.

And your orators further show that subsequent to the granting of the reissued letters patent hereinbefore recited, to wit, the 26th day of August, 1882, your orator, J. J. Schillinger, by an instrument in writing, duly executed and delivered, and for a valuable consideration, granted unto your orator, Elmer J. Salisbury, the exclusive right and privilege of using and practising the invention or improvements in concrete pavements which forms the subject-matter of reissued letters patent No. 4364, hereinbefore recited, for the entire State of Illinois and to the full end of the term for which said letters patent are granted, as by said instrument or duly authenticated copy thereof here in court ready to be produced will more fully and at large appear and to which your orators crave leave to refer.

7 And your orators further show that the said licensee, Elmer J. Salisbury, has been since the date of said license and now is engaged in laying concrete pavement in Chicago and other parts of the State of Illinois, and is, by the terms of the aforesaid license, solely and exclusively entitled to the use of the said patented invention in and for the territory specified, and that such exclusive right would be of great benefit and value were it not for the infringement by the defendant, J. B. Hurlbut, and his employees hereinafter complained of.

And your orators further show unto your honors that the said invention or discovery so patented as aforesaid unto your orator, Schillinger, is very valuable and useful to the public, and that the same has been extensively introduced into public use, and that the public have generally acquiesced in your orators' exclusive right to the same; and your orators would, but for the wrongful acts of the said defendant and others acting in concert with him, have made large gains and profits from the manufacture, use, and sale of the said invention, which he has been and is now hindered from making by reason of said wrongful acts of said defendant.

And your orators further show unto your honors that since the granting of the said letters patent your orators and those holding under them have brought the said invention into public use in various parts of the country, and that the same is of great advantage to the public and of great value to your orators, and has remained in the exclusive possession of your orators and those holding

8 under them to the great benefit of the public and great gains to

your orators, of which gains your orators *is* unjustly deprived by the act of the defendant hereinafter mentioned.

And your orators further show that on the first day of March, 1875, your orator, J. J. Schillinger, filed and entered in the Patent Office of the United States, according to law, his disclaimer to certain portions of the things patented by said reissued letters patent, as by reference to said disclaimer or to certified copy thereof here in court ready to be produced will more fully and at large appear.

And your orators further show unto your honors that the originality of the said invention and the validity of the said patent have been acquiesced in by the public, and that the validity of the said reissued patent has been established and settled on final hearing in the circuit court of the United States for the second circuit and southern district of New York, in equity, and a perpetual injunction ordered thereon; that one Herman A. Gunther, of the city of New York, having infringed upon the patent reissue No. 4364 by making and laying in said city a sectional concrete pavement, your orator filed a bill in chancery against him and Helena Wulfing, who was reputed to be his partner, in this court and district, upon the said reissue No. 4364, for an injunction and account and damages, in which suit the said defendants appeared and answered and testimony was taken on both sides; that in their answer the said defendants denied that your orator was the original and first
9 inventor of the said patented improvement, and denied the validity of the said patents, and also setting up in defense prior knowledge and use of the said patented improvement by various persons, and that the same was old at the time of the invention thereof by your orator and in public use more than two years before that time, and were shown and described in the following letters patent, namely:

Letters patent of the United States No. 5475, granted to Horace P. Russ March 19, 1848.

British patent No. 12566, granted to Louis P. N. D. Pirron April 16, 1849.

British patent No. 340, granted Jacques F. D. De Bassac February 11, 1854.

British patent No. 2659, granted to F. Colquet November 26, 1855.

British patent No. 445, granted to P. E. Fraissnet February 17, 1859.

British patent No. 2690, granted to Barnabus Russ October 30, 1863.

British patent No. 1080, granted to John Little April 29, 1864; and that said invention had been invented by one Charles J. Brandmann, of the town of Union, Hudson county, New Jersey, and by him made known to your orator, and that the same was known to and publicly used by Charles J. Brandmann and Gotlieb Seyfang at said town of Union and by John Nowak and said Gunther at the city of New York before the invention thereof by your orator,
10 Schillinger; that a final hearing was had upon the pleadings and proofs in said suit before his honor Nathaniel Shipman,

a judge of said circuit court, and, by the consideration and judgment of the court, the originality and validity of the said patent were sustained and a decree entered on the 23d day of April, 1879, against the said defendant Gunther (the said suit having before the hearing been discontinued as to the said Helena Wulfing) awarding an accounting and perpetual injunction, with costs, as by the record thereof will more fully and at large appear.

And your orators further show that after the said decree an injunction in accordance therewith was issued out of said court and served upon said Gunther, and your orators, finding that said Gunther had violated said injunction, made a motion before said court for an attachment against him for contempt of said injunction, and that said motion was heard by his honor Judge Shipman, who ordered a reference to Kenneth G. White, Esq., a master of this court, to find and report the facts; that upon the coming in of said master's report the defendant and complainant were again heard by his honor Judge Shipman, who rendered an opinion in writing thereon which was filed in the office of the clerk of this court February 26, 1877, as by the record thereof will more fully and at large appear.

And your orators further show unto your honors that the originality of the said invention and validity of the said patent have been established and settled on final hearing in the circuit
11 courts of the U. S. for the second circuit, before Judge Blatchford, then circuit judge, in the case of your orator, Schillinger, against Herman A. Gunther, by decision filed August 26th, 1879, as will more fully appear by said decision and by the record of said suit, to which, or to duly authenticated copies, your orator craves leave to refer.

And your orators further show unto your honors that the originality and validity of said reissued patent have been established and settled upon final hearing in the U. S. circuit court, ninth circuit, for the district of California, before Judge Sawyer, circuit judge, in the cause of The California Artificial Stone Paving Company *vs.* William D. Perrine and The California Artificial Stone Paving Company *vs.* Charles A. Molitor, by decisions filed May 7th, 1881, as will more fully appear by said decisions and by the records in said causes or by duly authenticated copies thereof here in court ready to be produced, and to which your orator craves leave to refer.

And your orators further show to your honors, upon information and belief, that the said defendant, well knowing the premises and the rights and privileges secured unto your orator, and in order to deprive him of the profits, benefits, and advantages which might and otherwise would have accrued to him, at various places in the city of Chicago and elsewhere, and within the said northern district of Illinois, and without the license or permission of your orator, has since the second day of May, 1871, and at divers times since that
12 time and before the commencement of this suit unlawfully and wrongly made or caused to be made, sold or caused to be sold, used or caused to be used, concrete pavement containing the said invention or discovery and improvements, or substantial or material

parts thereof, described and patented in said reissued letters patent No. 4364, the exclusive right to which is secured to your orator as hereinbefore set forth, and which said unlawful making, use, and sale by the defendant as aforesaid are a violation and infringement of your orator's exclusive rights and privileges under the said reissued letters patent as aforesaid, and that the said defendant still continues so to do in defiance of your orator's said rights and privileges and to your orator's great and irreparable loss and injury, and by which your orator has sustained and been put to great loss and damage, and has been and still is deprived of great gains and profits which your orator might and otherwise would have obtained and received, but which have been received and enjoyed and are being received and enjoyed by the said defendant by and through his aforesaid unlawful acts and doings; and that the said defendant has derived and received and is still deriving and receiving from such use great gains and profits, but to what amount your orators are ignorant and cannot set forth, but your orators believe the same to be about the full sum of five thousand dollars, and so charge the facts so to be, and pray that the said defendant may be required to make a discovery as to his use of said invention and of all gains and profits received by him therefrom or by means thereof.

13 And your orators further show to your honors that the aforesaid using of said invention by said defendant and his confederates and preparation and determination to continue the same and the aforesaid unlawful and wrongful acts have the effect to encourage and induce other persons to infringe and defy the letters patent as aforesaid and the aforesaid exclusive rights and privileges of your orators.

And your orators further show unto your honors that the said defendant has been warned and requested and notified to desist and refrain from said infringement and said unlawful and wrongful acts, but that said warning and request and notice have been wholly disregarded by said defendant, and that said defendant still continues the infringement and unlawful and wrongful acts aforesaid.

And your orators pray that the said defendant may be compelled by a decree of this honorable court to account for and pay over unto your orators all such gains and profits as have accrued or arisen to or have been earned or received by the said defendant and all damages your orators have sustained by reason of the said defendant.

And that the said defendant, his agents, attorneys, servants, and workmen, be enjoined and restrained by the order and injunction of this court from directly or indirectly making or causing to be made, using or causing to be used or vending to others to be used, in any manner any concrete pavements or other article containing or embodying or in any way counterfeiting or imitating the said

14 invention described and secured in said reissued letters patent so granted as aforesaid to your orators, and from infringing upon or violating the said letters patent by the manufacture, use, or sale of the said concrete pavements in any — whatever, and

that the said defendant may be decreed to pay the costs of this suit, and that a preliminary or provisional injunction may be granted against the defendant in this suit, and that your orators may have such other further order or relief as to this honorable court shall seem meet and shall be agreeable to equity.

To the end, therefore, that the said defendant may, if he can, show why your orators should not have the relief hereby prayed, and may upon corporal oath true and direct and perfect answer make, according to the best of his or his agents', clerks', servants', and workmen's knowledge, remembrance, information, and belief, to the several matters hereinbefore averred and set forth as fully and particular as if the same were here repeated paragraph by paragraph and they thereto severally and specifically interrogated—

May it please your honors to grant to your orators a writ of *subpœna ad respondendum* issuing out of and under the seal of this honorable court, directed to the said defendant, J. B. Hurlbut, commanding him, by a certain day and under a certain penalty, to be and appear in this honorable court, then and there to make answer unto this bill of complaint and to perform and abide by such
15 order and decree herein as to this court may seem meet and agreeable to equity.

And your orators will ever pray, &c.

JOHN J. SCHILLINGER.
ELMER J. SALISBURY.

DUELL & HEY,
Com's' Sol'rs and of Counsel, 60 *Honore B'ld'g,*
204 *Dearborn St., Chicago.*
GEORGE W. HEY, *Of Counsel.*

UNITED STATES OF AMERICA, }
Northern District of Illinois, County of Cook, } *ss:*

Elmer J. Salisbury, being duly sworn, deposes and says that he is one of the complainants; that he has read the foregoing bill of complaint and knows the contents thereof; that the same is true of his own knowledge, except as to those matters therein stated on information and belief, and as to those matters he believes it to be true.

ELMER J. SALISBURY.

Subscribed and sworn before me this 13th day of October, 1882.
[L. S.] PHILIP C. DYRAMFORTH,
Notary Public.

Endorsed: Filed Oct. 19, 1882. Wm. H. Bradley, clerk.

16 On the same day, to wit, on the nineteenth day of October, 1882, there issued out of said clerk's office a writ of subpœna in said entitled cause; which said writ, together with the return of the marshal endorsed thereon, is in the words and figures following, to wit:

Subpœna.

UNITED STATES OF AMERICA, } ss:
Northern District of Illinois, }

The United States of America to J. B. Hurlbut, Greeting:

We command you that you appear before our judges of our circuit court of the United States of America for the northern district of Illinois, at Chicago, in said district, on the first Monday in the month of December next, to answer the bill of complaint of John J. Schillinger and Elmer J. Salisbury this day filed in the clerk's office of said court, in said city of Chicago, then and there to receive and abide by such judgment and decree as shall then or thereafter be made, upon pain of judgment being pronounced against you by default.

To the marshal of the northern district of Illinois to execute.

Witness the Hon. Morrison R. Waite, Chief Justice of the Supreme Court of the United States of America, at Chicago aforesaid,
17 this 19th day of October, in the year of our Lord one thousand eight hundred and eighty-two, and of our Independence the 107th.

[SEAL.] W. H. BRADLEY, *Clerk.*

Memorandum.

The above-named defendant is notified that unless he shall enter his appearance in the clerk's office of said court at Chicago aforesaid on or before the day to which the above writ is returnable the complainants' bill will be taken against him as confessed and a decree entered accordingly.

W. H. BRADLEY, *Clerk.*

I have served the within writ within my district in the following manner, to wit: Upon J. B. Hurlbut, therein named, on the 19 day of October, A. D. 1882, by personally delivering to him a true copy of the same on the aforesaid day. I also left writ and copy of other papers appertaining to the litigation at issue.

A. M. JONES, *U. S. Marshal,*
By W. D. RINGLAND, *Deputy.*

Endorsed: Filed Nov. 10th, A. D. 1882. Wm. H. Bradley, clerk.

18 Afterwards, to wit, on the sixth day of November, 1882, came the defendant, by his solicitors, and filed in said clerk's office his appearance in said entitled cause; which said appearance is in the words and figures following, to wit:

Appearance.

United States Circuit Court, Northern District of Illinois. In Equity.

JOHN J. SCHILLINGER *et al. vs.* J. B. HURLBUT.

We hereby enter an appearance for the defendant in the above-entitled cause.

Chicago, Ills., Nov. 6th, 1882.

WEST & BOND,
Sol'rs for Def't.

Endorsed: Filed Nov. 6, 1882. W. H. Bradley, cl'k.

19 Afterwards, to wit, on the fourth day of December, in the adjourned October term of said court, 1882, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

JOHN J. SCHILLINGER *et al.* *vs.* J. B. HURLBUT. } In Chancery.

On motion of Mr. Bond the time for the defendant to answer is hereby extended to the next rule day.

Afterwards, to wit, on the twenty-first day of December, in the December term of said court, 1882, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

JOHN J. SCHILLINGER *et al.* *vs.* J. B. HURLBUT. } In Chancery.

Now come the parties, by their solicitors, and the complainant-, by *his* solicitor, moves the court for a preliminary injunction as prayed in the bill of complaint herein, and after hearing the arguments of counsel the court, not being sufficiently advised in the premises, takes time to consider.

20 Afterwards, to wit, on the twenty-sixth day of December, in the December term of said court, 1882, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

JOHN J. SCHILLINGER *et al.*
vs.
J. B. HURLBUT. } In Chancery.

Now again come the parties, by their solicitors, and the court, having considered the motion of the complainant for a preliminary injunction as prayed in the bill herein, overrules the same.

Afterwards, to wit, on the second day of January, 1883, came the defendant, by his solicitors, and filed in said clerk's office his answer in said entitled cause; which said answer is in the words and figures following, to wit:

The Answer of J. B. Hurlbut, Defendant, to the Bill of Complaint of John J. Schillinger and Elmer J. Salisbury, Complainants.

United States Circuit Court, Northern District of Illinois. In Equity.

JOHN J. SCHILLINGER and ELMER J. SALISBURY, Complainants,
vs.
J. B. HURLBUT, Defendant.

This defendant, now and at all times hereafter, saving and reserving to himself all manner of benefit and advantage of exception which may be had or taken to the manifold errors and insufficiencies in the complainants' said bill of complaint contained, for answer thereto, or unto so much or such parts thereof as he is advised is material for him to make answer unto, answering, says as follows:

First. That he admits, upon information and belief, that letters patent of the United States No. 105,599, bearing date the nineteenth day of July, 1870, were issued to John J. Schillinger substantially as in said bill alleged, but he denies here, as more specifically hereinafter, that the said Schillinger was the original and first inventor of the matters and things shown, described, and claimed in the said letters patent No. 105,599.

Second. This defendant, further answering, admits, upon information and belief, that the said original letters patent No. 105,599 *was* surrendered and a reissue obtained therefor, bearing date the second day of May, 1871, No. 4364, substantially as in said bill alleged, except that he does not admit that the said original patent was
22 lawfully surrendered and reissued, nor does he admit that the said original patent was inoperative or invalid by reason of any defect, insufficiency, or any other error which had arisen by an inadvertence, accident, or mistake.

Third. This defendant, further answering on information and belief, avers that the said original patent No. 105,599 was not sur-

rendered for any good or lawful cause, and he avers that said original patent No. 105,599 was not inoperative or invalid by reason of a defective or insufficient specification or by reason of any other error which had arisen from inadvertence, accident, or mistake, and he avers that the said patent reissue No. 4364 is not for the same invention as said original patent if construed as now contended for by the complainants, and upon any construction of said patent the first claim is for an invention not shown or described or otherwise contained in said original patent.

Fourth. This defendant, further answering upon information and belief, avers that new matter has been introduced into the specification of said patent reissue No. 4364 if the same is construed as now contended for by the complainants, and that the introduction of such new matter is contrary to the statutes in such case made and provided, and that therefore such patent is wholly void; and the defendant, further answering upon information and belief, avers that the said patent reissue No. 4364, if construed as contended for by the complainants has been unlawfully enlarged and made to contain new matters and things without the authority of law and which were not the invention of the said John J. Schillinger, and that therefore the said reissue patent No. 4364 is wholly void.

Fifth. This defendant, further answering, denies, upon information and belief, that the said supposed invention or discovery originally patented by the said Schillinger is of any value to or useful to the public, and he denies that the same has been extensively introduced into public use, and that the public has generally acquiesced in any supposed exclusive rights to the same, and he avers, upon information and belief, that the actual facts will show that the said supposed invention or discovery is not valuable nor useful.

Sixth. This defendant, further answering upon information
23 and belief, admits that on or about the first day of March, 1875, the complainant, John J. Schillinger, filed and entered in the Patent Office of the United States his disclaimer to certain portions of the thing patented by the said reissue No. 4364, substantially as in said bill alleged, and he avers that in and by said disclaimer the said Schillinger intended to and did disclaim the laying of concrete in separate blocks, except in connection with tarred paper.

Seventh. This defendant, further answering, denies that the originality of the said supposed invention and the validity of said reissue patent No. 4364 have been acquiesced in in the manner now contended for by the complainants, and says that his knowledge and information in reference to the suit for alleged infringement set forth in said bill of complaint is entirely different as to the result of the final hearing from that now contended for by the complainants, and is to the effect that at the hearing of said suit the said supposed invention of the said Schillinger, as set forth in the said reissue, was held to be good and valid only in connection with tarred paper; and, further answering, the defendant avers that the result of said suit has no bearing or effect in an action against him for any alleged infringement of the said reissue, as he is informed and believes

that he has a good and valid defense thereto, and has new matter as a defense to the originality of the supposed invention of the said Schillinger set forth in said reissue No. 4364.

Eighth. This defendant, further answering upon information and belief, avers that on the reference by his honor Judge Shipman, as alleged in said bill, a decretal order was made by his honor instructing the master to find as infringements only such concrete pavement as was laid with tarred paper between the joints, as will more fully appear on reference to such order.

Ninth. This defendant, further answering on information and belief, avers that the decision by his honor Judge Blatchford, filed August 26th, 1879, referred to in the bill has no bearing as to the originality of said supposed invention of said Schillinger, nor no bearing as to the validity of said reissue letters patent, but is wholly and entirely in reference to what can be disclaimed by a disclaimer.

Tenth. This defendant, further answering, avers that he
24 has no knowledge or information, save that derived from the bill, in reference to a decision by his honor Judge Sawyer, and can neither admit nor deny the allegation of the bill relative thereto, and has no knowledge whether a defense was made in the suit therein referred to, or any contest was made as to the validity of said reissue letters patent No. 4364 and the disclaimer filed thereto, as alleged in said bill, and he avers, upon information and belief, that the result of said suit before his honor Judge Sawyer has no bearing or effect as to any supposed infringement of said reissue No. 4364 by him, and that he is informed and believes that he has new matter in defense as to the originality of said supposed invention and the validity of said reissue 4364.

Eleventh. This defendant, further answering, says that he has no knowledge or information, except that derived from the bill, relative to the alleged transfer to the complainant, Elmer J. Salisbury, as alleged in the bill, and therefore can neither admit nor deny such allegation, but leaves the complainants to make such proofs thereof as they are advised is material or necessary.

Twelfth. This defendant, further answering, denies, upon information and belief, that the said Schillinger was the original and first inventor of the matters and things described and claimed in said reissue No. 4364; and he avers that long prior to the supposed invention thereof by the said Schillinger the said matters and things had been shown in and described by letters patent of Great Britain, as follows, to wit:

English patent granted to Richard Tappin Claridge, enrolled May 25, 1838, No. 7489, of the year 1837, for cement for paving and building purposes.

Also English patent granted to George Robert D'Harcourt, enrolled September 6th, 1839, No. 7991, of the year 1839, for artificial stone, marble, &c.

Also English patent granted to Auguste Chesneau, filed October 12, 1852, No. 350, of the year 1852, for paving.

Also English patent granted to Francois Coignet, sealed May

25 20, 1856, dated November 26, 1855, No. 2659, of the year 1855, for artificial stone and cement.

Also English patent granted to Charles Jean Le Melorel De La Haichois, sealed September 12, 1856, dated March 31, 1856, No. 771, of the year 1856, for paving.

Also shown in and described by letters patent of the United States as follows, to wit:

Letters patent granted to Horace P. Russ, dated March 14, 1848, No. 5475, for improvement in the construction and arrangement of the parts constituting the carriage-ways of streets and roads.

Also letters patent granted to D. Huestis, dated July 24, 1866, No. 56563, for pavement.

Also shown and described in English letters patent granted to Henry Austin, dated May 25th, 1843, No. 9737, of the year 1843, for wood pavements, floorings, and veneers.

Thirteenth. This defendant, further answering, avers, upon information and belief, that if the said supposed original invention of the said Schillinger is to be construed as now contended for by the complainants the matters and things shown and described in said reissue patent No. 4364 had been known to and practiced by the following-named persons at the places named long prior to the supposed inventions by the said Schillinger:

Known to and used by Michael Botzler, now residing in Chicago, Illinois, and used by him at said Chicago, and such use was known to George Dickenson and other persons connected with the Downer and Bemis Brewing Company, and also known to various parties connected with Huck's brewery, both breweries being located in Chicago.

Also known to and used by Charles Row, now residing in the city of Chicago, Illinois, and used by him at Bavaria, Germany, and in this country.

Also known to and used by various parties now to this de-
26 fendant unknown, but to whom he begs leave to refer as soon as known.

Fourteenth. This defendant, further answering, avers, upon information and belief, that the state of the art in the laying of concrete and other pavements and walks at the date of the said supposed invention of the said Schillinger was such that it did not require invention, but simply mechanical skill, to produce the supposed invention of the said Schillinger.

Fifteenth. This defendant, further answering, denies any and all confederation as against any of the supposed rights of the complainants under said letters patent No. 4364.

Sixteenth. This defendant, further answering, denies that he has since the 2nd day of May, 1871, and prior to the commencement of this suit, made or caused to be made, sold or caused to be sold, used or caused to be used, any concrete pavements containing the said supposed invention or discovery or improvements, or any substantial or material part or parts thereof, described and patented in said reissue letters patent No. 4364, but he admits that he has laid concrete for pavements and walks under and in accordance with

letters patent of the United States granted to him, bearing date April 20th, 1875, No. 162,172, for apparatus for laying cement pavement in blocks, said pavements and walks so laid being known or termed diamond block pavement or walks; that he has laid pavements, walks, and floors in square blocks, or imitation of flag pavement, using, instead of the device shown in his said patent No. 162,172, joists or scantlings for forming a mold, and that in laying such square blocks or imitation flag-stone pavements and walks and floors it has been his practice, after the first block has been laid, to move the joist or scantling back and lay the next block between such joist or scantling and the block first formed as the mold, and that in neither form of laying has he used a dividing strip left between the separate blocks for the purpose of making a water-tight joint or for any other purpose.

Without this, that any other matter or thing whatsoever in said bill contained material or necessary for this defendant to make answer unto and not herein and hereby well and sufficiently answered unto, confessed or avoided, traversed or denied, is true to the knowledge or belief of this defendant; all which matters and things this defendant is ready to aver, maintain, and prove as this honorable court shall direct, and humbly prays to be hence dismissed with his reasonable costs and charges in that behalf most wrongfully sustained.

J. B. HURLBUT,
By WEST & BOND,
His Attorneys.

WEST & BOND,
Sol'rs for Def't.

Endorsed: Filed Jan. 2, 1883. Wm. H. Bradley, clerk.

27 Afterwards, to wit, on the thirteenth day of January, 1883, came the complainants, by their solicitors, and filed in said clerk's office their replication to the answer of the defendant in said entitled cause; which said replication is in the words and figures following, to wit:

Replication.

In the U. S. Circuit Court, Northern District Illinois, of the Feb'y Term, A. D. 1883. In Chancery.

JOHN J. SCHILLINGER and ELMER J. SALISBURY
vs.
J. B. HURLBUT.

The replication of John J. Schillinger and Elmer J. Salisbury, complainants, to the answer of Jonathan B. Hurlbut, defendant.

These repliants, saving and reserving to themselves all and all manner of advantage of exception which may be had and taken to the manifold errors, uncertainties, and insufficiencies of the answer of the said defendant, for replication thereunto saith that they do and

will aver, maintain, and prove said bill to be true, certain, and sufficient in the law to be answered unto by the said defendant, and that the answer of the said defendant is very uncertain, evasive, and insufficient in the law to be replied unto by these repliants, without this, that any other matter or thing in the said answer con-
28 tained material or effectual in the law to be replied unto and not herein and hereby well and sufficiently replied unto, confessed or avoided, traversed or denied, is true; all which matters and things these repliants are ready to aver, maintain, and prove as this honorable court shall direct, and humbly pray as in and by their said bill they have already prayed.

DUELL & HEY,
Solicitors for Complainants.

GEORGE W. HEY, *Of Counsel.*

Endorsed: Filed Jan. 30, 1883. Wm. H. Bradley, clerk.

Afterwards, to wit, on the fifteenth day of March, in the adjourned March term of said court, 1884, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

JOHN J. SCHILLINGER and ELMER J. SALISBURY
vs.
J. B. HURLBUT. } In Chancery.

Now come the parties herein, by their solicitors, and complainants' solicitor suggests to the court the death of the said Elmer J.
29 Salisbury, and on motion of complainants' solicitor leave is given him to file a bill of revivor herein, and thereupon this cause is set down for hearing upon the pleading and proofs, and after hearing the arguments of counsel the court, not being sufficiently advised in the premises, takes time to consider.

On the same day, to wit, on the fifteenth day of March, 1884, came the complainants, by their solicitors, and filed in said clerk's office their bill of revivor in said entitled cause; which said bill of revivor is in the words and figures following, to wit:

30 Circuit Court of the United States, Northern District of Illinois.

To the honorable the judges of the circuit court of the United States for the northern district of Illinois, in chancery sitting:

Your orators, John J. Schillinger and Olive G. Salisbury, administratrix of Elmer J. Salisbury, deceased, complaining, show unto your honors that your orator, John J. Schillinger, on or about the nineteenth day of October, one thousand eight hundred and eighty-two, with Elmer J. Salisbury, his exclusive licensee for certain ter-

ritory, exhibited their bill of complaint in this honorable court against J. B. Hurlbut, the defendant therein named; that said bill was brought for the alleged infringement by the defendant of letters patent of the United States granted to your orator, John J. Schillinger, on the second day of May, 1871, for improvement in concrete pavements, and numbered reissue No. 4364, which said patent at the time of the commencement of said suit was in force and owned by your orator and the said Elmer J. Salisbury, exclusive territorial licensee, by an instrument in writing executed by your orator, John J. Schillinger, as alleged in said bill; that your orator, John J. Schillinger, and the said Elmer J. Salisbury, in and by their said bill of complaint, alleged that the defendant, J. B. Hurlbut,
31 had infringed said reissue letters patent No. 4364, and prayed that the said defendant might answer, but not on oath, all and singular the matters and things set forth in said bill and decree; to account for and pay over to your orator, John J. Schillinger, and the said Elmer J. Salisbury all gains and profits realized by him from the unlawful use of said improvements vested in your orator, John J. Schillinger, and the said Elmer J. Salisbury, as in said bill alleged, and the damages sustained by your orator, John J. Schillinger, and the said Elmer J. Salisbury thereby, and that the defendant might be restrained perpetually, by an injunction to be issued out of this honorable court, and also by a preliminary injunction during the pendency of the suit, from making, using, and vending to others to be used, any concrete pavements containing the improvements secured as aforesaid to your orator, John J. Schillinger, and the said Elmer J. Salisbury or any material part thereof; and that your orator, John J. Schillinger, and the said Elmer J. Salisbury might have such other and further relief as equity might require.

And the said J. B. Hurlbut, being served with processes of subpœna for that purpose, service of which was had on him on or about the — day of October, one thousand eight hundred and eighty-two, appeared in court, on or about the 23rd day of October, one
32 thousand eight hundred and eighty two, by his solicitors, to show cause why a preliminary injunction should not be issued against him during the pendency of said suit, at which date the hearing of said motion was postponed for the period of three weeks; that the said defendant, on or about the sixth day of November, one thousand eight hundred and eighty-two, entered his appearance by West & Bond, his solicitors; that on or about the fourth day of December, one thousand eight hundred and eighty-two, the time in which said defendant was to make answer to said bill of complaint was extended to the first Monday in January, one thousand eight hundred and eighty-three; that on or about the twenty-sixth day of December, one thousand eight hundred and eighty-two, on affidavits submitted by both parties and on oral arguments by the respective solicitors for both parties, an order was entered denying the preliminary injunction during the pendency of the suit; and that on or about the second day of January, one thousand eight hundred and eighty-three, the said defendant put in his answer to said bill,

to which a replication was filed on or about the thirtieth (30) day of January, one thousand eight hundred and eighty-three, as by the said bill, appearance, order of record, answer, and replication now remaining on file as of record in this honorable court, reference being thereunto had, will more fully appear.

Your orator further shows unto your honors that after-
33 wards, on or about the thirtieth day of January, one thousand eight hundred and eighty-three, pursuant to agreement, your orator, John J. Schillinger, and the said Elmer J. Salisbury proceeded to take the depositions of certain witnesses, namely, Elmer J. Salisbury and Amos H. Perkins, in behalf of your orator, John J. Schillinger, and the said Elmer J. Salisbury, to be used upon the hearing of the said cause, as by the record of such examination will more fully appear, reference thereto being hereby had; that afterwards and on or about the eighth day of May, one thousand eight hundred and eighty-three, pursuant to agreement, the defendant proceeded and put in evidence on his behalf, to be used upon the hearing of said cause, certain printed blue books of English letters patent, as follows: No. 350, of the year 1852; No. 771, of the year 1856; No. 7991, of the year 1839; No. 7489, of the year 1837; No. 2659, of the year 1855; a copy of the specification and drawings of U. S. letters patent to Morris P. Russ, No. 5475, dated March 4th, 1848; copy of the specification and drawings of U. S. letters patent to A. Van Camp, ass'r, &c., No. 93142, dated July 27th, 1869; certified copy of U. S. letters patent to John J. Schillinger, No. 105,599, dated July 19th, 1870; certified copy of U. S. letters patent to John J. Schillinger, reissue No. 4364, with the disclaimer, filed March 1, 1875; certified copy of U. S. letters patent to John J.
34 Schillinger, No. 111,879, dated February 14th, 1871; certified copy of U. S. letters patent to J. Burrell Hurlbut, ass'r, &c., No. 162,172, dated April 20, 1875, the same being entitled, respectively, defendant's exhibits in this cause "Chesneau Patent," "Haichois Patent," "D'Harcourt Patent," "Claridge Patent," "Coignet Patent," "Russ Patent," "Van Camp Patent," "Schillinger Original Patent," "Schillinger Reissue Patent," "Schillinger 1871 Patent," "Hurlbut Patent;" also the deposition of William S. Bates, taken orally, and by stipulation the depositions of John Miller, John Peitsch, J. B. Hurlbut, Charles Row, Klaus Miller, and Michael Botzler, in his behalf, to be used upon the hearing of said cause, as by the record of such proceedings will more fully appear, reference thereto being hereby had, and that on or about the nineteenth day of July, one thousand eight hundred and eighty-three, your orator, John J. Schillinger, and the said Elmer J. Salisbury, pursuant to agreement, proceeded to take the deposition of certain witnesses in rebuttal, namely, Elmer J. Salisbury, Charles E. Hall, and Amos H. Perkins, and on or about the seventeenth day of August, one thousand eight hundred and eighty-three, your orator, John J. Schillinger, and the said Elmer J. Salisbury proceeded to take the depositions of certain witnesses in rebuttal, namely, Faber du Faur, John J. Shillinger, and John H. Stark, which depositions
35 were taken in behalf of your orator, John J. Schillinger, and

said Elmer J. Salisbury, to be used upon the hearing of said cause, as by the record of such examination will more fully appear, reference thereto being hereby had.

Your orator further shows that afterwards and on or about the twenty-sixth day of October, one thousand eight hundred and eighty-three, the said cause was duly noticed for trial on the chancery calender, made up by the clerk of the U. S. circuit court in and for the northern district of Illinois, but before said cause was reached to be heard, and before any further proceedings were had in the said cause, and on or about the nineteenth day of February, one thousand eight hundred and eighty-four, the said Elmer J. Salisbury, one of the complainants, departed this life, and that thereafter and on or about the thirteenth day of March, one thousand eight hundred and eighty-four, your oratrix, Olive G. Salisbury, widow of the said deceased Elmer J. Salisbury, was duly appointed administratrix of the said Elmer J. Salisbury, deceased, and that she has duly qualified and is acting as such administratrix, and the said suit having abated at the death of said Elmer J. Salisbury your orator, said John J. Schillinger, and said Olive G. Salisbury, administratrix of Elmer J. Salisbury, deceased, being advised that they are entitled to have the same and the several proceedings therein revived against the said defendant and restored to the conditions in which
36 they were at the time of the death of said Elmer J. Salisbury, and to have the same relief against the said defendant as the said Elmer J. Salisbury would have been entitled to if he were still living.

To the end, therefore, that the said defendant may, if he can, show why the said suit and proceedings should not be revived, and your now orators, John J. Schillinger and Olive G. Salisbury, administratrix of the estate of Elmer J. Salisbury, deceased, have the relief hereby prayed, and may, according to the best and utmost of his knowledge, remembrance, information, and belief, full, true, and perfect answer make to all and singular the premises, and more particularly whether, &c., and that it may be declared that your orators, John J. Schillinger and the said Olive G. Salisbury, administratrix, &c., are entitled to revive the said suit and proceedings so become abated as aforesaid and to have the benefit thereof, and that the said suit and proceedings may be decreed to stand and be revived accordingly and to be in the same plight and condition as they were at the time of the said abatement, and that your orators John J. Schillinger and said Olive G. Salisbury may have the same relief against the said defendant as the said Elmer J. Salisbury would be entitled to if he were still living, and that your orators may have such further relief as equity may require; and your orators shall ever pray, &c.

DUELL & HEY,
Sol'rs for Compl'ts.

GEORGE W. HEY, *Of Counsel.*

37 Formal answer being waived, the defendant in the above-entitled suit admits upon the best of his information, knowl-

edge, and belief that the facts set forth in the foregoing bill of revivor are true, and that the complainants are entitled to have their cause revived, as prayed for in said bill of revivor.

WEST & BOND,
Sol'rs and of Counsel for Def's.

Endorsed: Filed March 15th, 1884. William H. Bradley, clerk.

Afterwards, to wit, on the fifteenth day of May, 1884, the following opinion was delivered by Judge Blodgett in said entitled cause:

38 JOHN J. SCHILLINGER *et al.* *vs.* J. B. HURLBUT. } In Chancery.

BLODGETT, *J.* (orally):

This is a bill to restrain the infringement of a patent issued to the complainant July 19th, 1870, and reissued to him May 2, 1871, for an "improvement in concrete pavements."

The patent has been before the United States courts on various occasions and construed and adjudicated upon to such an extent that I do not feel at liberty to do more in this case than look into the records of the former cases and determine whether the case now before me is substantially that which has been before the other courts where the patent has been construed and the rights of the parties determined. It was first before the United States circuit court for the southern district of New York, Judge Shipman, of Connecticut, presiding, and the patent held valid. It was again before Judge Blatchford, in August, 1879, and the patent again construed and held valid. In May, 1881, it was before the United States circuit court for the 9th circuit, in the case of The California Artificial Stone Company *vs.* Perrine and Molitor, and Judge Sawyer, after an apparently very careful consideration of the testimony, held the patent valid. In July last the case of Schillinger *vs.* Green-
39 way Brewing Company was before the United States court for the southern district of New York, Justice Blatchford presiding, and the learned justice of the Supreme Court again considered all the preceding cases and the testimony in the case then before him, and I cannot see that the case in this court differs in any essential particular from that before the court in case last mentioned. It seems to me that all the questions in regard to the true construction to be given to the patent, the construction of the various disclaimers in the original patent, and the disclaimers subsequently filed and the evidence upon the question of novelty were all before Judge Blatchford in the last-named case to such an extent to substantially anticipate and meet all that is now before me.

I am free to say that were the question before me an original one, not embarrassed at all by the prior decisions, I should have great doubts as to the validity of this patent on the ground of novelty. I should certainly think there was very little which was patentable in this device, but the rule of comity, it seems to me, should prevail to

its fullest extent in the decisions of the Federal courts in patent cases; otherwise we should have a patent held — in one circuit and void in another.

Property in patents would be seriously jeopardized and its value interfered with to a great extent by conflicting decisions in
40 the various circuits before the case could be passed upon by the Supreme Court, and therefore I think the courts should be slow to overrule a decision which has been heretofore made upon the validity of a patent and should not do it unless the evidence is so substantially different as to fully justify the conclusion that if the same testimony had been before the first court it would have given a different ruling in the case.

Controlled, as I must consider myself, by these previous decisions, I shall find that the defendant infringes, because the case is in no way different, so far as infringement is concerned, from the California case and the case of the Greenway Brewing Company. The patent has but a few years longer to run, and it appears to me desirable to get the decision of the Supreme Court upon this question at as early a day as possible.

It seems to me the case may go to the Supreme Court upon an agreed amount of damages or in some way at as early a day as possible, so that the questions may receive a final and early settlement.

A decree can be prepared finding the equities to be with the complainants and that the defendant infringes and a reference to a master if counsel cannot agree upon the damages.

Endorsed: Filed May 15th, 1884. Wm. H. Bradley, clerk.

41 On the same day, to wit, on the fifteenth day of May, in the adjourned May term of said court, 1884, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

JOHN J. SCHILLINGER and OLIVE G. SALISBURY, Administratrix of Elmer J. Salisbury, Deceased,
vs.
J. B. HURLBUT. } In Chancery.

This cause having come on to be heard on the pleadings and proofs taken herein, both oral and documentary, and having been argued by the counsel for the respective parties hereto, now, therefore, on consideration thereof, it is ordered, adjudged, and decreed as follows, to wit: That the reissued letters patent No. 4364 for improvement in concrete pavement, issued to John J. Schillinger on the second day of May, 1871, being the letters patent referred to in the bill of complaint herein are good and valid in law; that the said John J. Schillinger was the first and original inventor and discoverer of the improvement in concrete pavement as described and claimed in said reissue letters patent No. 4364 and in the specifica-

tion annexed thereto, and that the complainant, Olive G.
42 Salisbury, administratrix of Elmer J. Salisbury, is the exclusive owner of all rights under said letters patent which have accrued since the twenty-sixth day of August, 1882, within the State of Illinois; that the defendant, J. B. Hurlbut, has infringed the foregoing reissue letters patent and upon the exclusive rights of the complainant, as set forth in the bill of complaint.

It is further ordered, adjudged, and decreed that the complainant, Olive G. Salisbury, administratrix, do recover of the defendant the profits, gains, and advantages which the said defendant has received or made or which have accrued to him, and the damages suffered by said complainant from the said infringement of the reissue letters patent, as charged in the bill of complaint herein, since the twenty-sixth day of August, 1882. It is further ordered that it be referred to H. W. Bishop, Esq., one of the masters of this court, residing at Chicago, Illinois, to ascertain and take and state an account of the number of feet or amount of concrete pavement which has been made, used, or sold by the defendant, and also the gains, profits, and advantages which the said defendant has received or which have arisen or accrued to him since the said twenty-sixth day of August, 1882, and also the damages suffered by said complainant arising out of or from the infringement of the exclusive
43 rights of said complainant by the said defendant by such making, using, or selling of the patented improvement referred to in the letters patent set forth in the bill of complaint herein.

And it is further ordered, adjudged, and decreed that said complainant, on such accounting, have the right to cause an examination of the defendant and his employees, *ore tenus* or otherwise, and also the production of the books, vouchers, and documents of said defendant, and that he and they attend for such purpose before such master from time to time as such master shall direct.

And it is further ordered that complainants close proofs before the master by the eighteenth of June next, and that defendant have until the first of July to put in any proofs on his part.

Afterwards, to wit, on the third day of July, in the adjourned May term of said court, 1884, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

JOHN J. SCHILLINGER *et al.*
vs.
J. B. HURLBUT. } In Chancery.

Now comes the defendant, by Mr. Bond, his solicitor, and moves the court for a rehearing.

44 Afterwards, to wit, on the thirtieth day of September, 1884, came Henry W. Bishop, one of the masters in chancery of

said court, and filed in said clerk's office his report in said entitled cause; which said report is in the words and figures following, to wit:

45 *Master's Report.*

Circuit Court of the United States, Northern District of Illinois. In Equity.

JOHN J. SCHILLINGER and OLIVE G. SALISBURY, as Adm'x of Elmer J. Salisbury,
vs.
J. B. HURLBUT.

To the honorable the judges of the said court:

I, Henry W. Bishop, master in chancery, to whom — by an order of the court entered on the 15th day of May, 1884, for the purpose of taking proof and ascertaining and taking and stating and reporting to the court the damages which have accrued to the complainant, and the gains, profits, and advantages the defendant has received from the infringement by him of the complainant's patent, known as the Schillinger pavement patent, being reissued No. 4364, dated May 2nd, 1871, based upon original patent of July 19th, 1870, granted to the complainant, John J. Schillinger, respectfully report—

That upon this hearing I have been attended from time to time, as hereinafter appears, by Messrs. Banning and Banning and Duell and Hay, counsel for complainants, and by Messrs. West & Bond, counsel for the defendant, when the testimony of A. H. Perkins and others was taken upon the part of complainants, and of James
46 I. Winona and others upon the part of the defendant, all of which testimony is herewith reported. I have also examined the written suggestions of counsel in connection with this testimony.

Upon consideration of all of which I find and report—

That the defendant, during the period of this accounting, to wit, between August 26th, 1882, and the 20th of May, 1884, laid 70,909 feet of pavement by the use of the patent of the complainants as described and defined in the opinion of the court rendered in this cause, for which he should be held to account.

The statement submitted by the defendant and contained in this record shows this result:

Upon the part of the defendant it is claimed that the Schillinger invention is of no use whatever, and that the value of the work reported by the defandant was in no sense due to this feature in the process of laying pavements, and that the Schillinger invention is absolutely worthless and detrimental even, and that for these reasons no damages are recoverable in this case.

I do not understand this to be the effect of the testimony, from which it clearly appears that the Schillinger invention was a useful one in the laying of the pavement referred to, and that there was no demand for this work in Chicago, which did not include it. The de-

fendant used it, and, by the opinion of the Supreme Court expressed in other like cases, is therefore estopped from setting up its
47 inutility. It appears, moreover, from the testimony that the demand for the pavement was attributable to the fact that it contained the features of the complainants' patent, and I do not find any evidence in the record contradicting the testimony of witnesses upon this point. It would follow, therefore, that the amount realized by the defendant in the work reported by him was due to the use of this process, for which the complainants would be entitled to all the profits realized by him. It is insisted upon the part of complainants that during the period of the alleged infringement they were in a position to do all the work which was required to be done in the city of Chicago at a profit of 33 per cent. per square foot, when defendant charged 20 cents per square foot, that being the average charge made by them, which would leave a net profit of six and two-thirds cents per square foot, and that the loss of this profit is the measure of their damages, and that in the absence of defendant's competition their profit would exceed even that amount. In the first case their damages would in this way amount to the sum of $4,727.40 and in the second to a much larger sum upon the work reported. The testimony shows that the defendant's profits amounted to 4 cents a square foot, which would make $2,833.44 due the complainants upon this basis.

I understand, however, that neither one of these rules is adopted where a license fee has been definitely established, as is
48 shown in this case, and I have therefore adopted that basis as furnishing the rule which, under all the circumstances, I think should be applied in this case, where so many licenses have been granted at a uniform rate, except in a very few instances, when the furnishing of material and the doing of certain portions of the work have been accepted in partial payment. It is insisted upon the part of the defendant that many of their licenses have been granted since the patent was sustained by the court, and that for this reason the lower rate of two and a half cents per foot, which was in some cases before that time paid, should be adopted.

I do not think that this position is at all warranted by the testimony, which shows very clearly that five cents a square foot would be a reasonable compensation to be awarded complainants at the rate of 20 cents for the laying of the pavement, which was the amount paid for the work reported.

From the amount found to be due from the defendant in this case it is insisted there should be deducted the salary of the superintendent at the rate of $1,500.00 a year. Upon either basis I do not understand that this deduction has ever been made by the court, and I have therefore disregarded this claim.

I therefore find and report that there is due the complainants, on account of the infringement by the defendant of their rights,
49 upon the basis and for the term hereinbefore stated, the sum of $3,545.45.

I return all the testimony submitted to me and used by me in the preparation of this report.

All of which is respectfully submitted.

Sept. 27th, 1884.

HENRY W. BISHOP,
Master in Chancery of the Circuit Court of the United States for the Northern District of Illinois.

Endorsed: Filed Sept. 30th, 1884. William H. Bradley, clerk.

Afterwards, to wit, on the fifteenth day of October, 1884, came the defendant, by his solicitors, and filed in said clerk's office his exceptions to the master's report in said entitled cause; which said exceptions are in the words and figures following, to wit:

50 *Exceptions to Master's Report.*

United States Circuit Court, Northern District of Illinois. In Equity.

JOHN J. SCHILLINGER *et al. vs.* J. B. HURLBUT.

And now comes J. B. Hurlbut, defendant, by West & Bond, his solicitors, and presents his exceptions to the report of Henry W. Bishop, master in chancery, filed in this cause, as follows, to wit:

1st. That the master erred in holding that the 70,909 feet of pavement laid was laid under the Schillinger patent, whereas he should have found that such pavement was laid under the English patent to Claridge of 1837.

2nd. For that, in the absence of proof distinguishing the Schillinger improvement from the Claridge, the master erred in allowing more than nominal damages.

3rd. For that the master erred in allowing more than nominal damages, because the proofs show that the defendant, in making his pavements, used the Claridge process of or improvement in forming concrete pavements upon the ground where the blocks remain for use.

4th. For — the master erred in finding that the value of that which the defendant used in making pavements was the use
51 of the improvement of the Schillinger patent.

5th. For that the master erred in finding that the Schillinger patented improvement, as distinguished from the older art, had any value.

6th. For that the master erred in holding that a license fee only adopted since the decision in this cause was a proper basis for computing damages therein.

7th. For that the master erred in not adopting as a license basis the license fee of two and one-half cents per foot, which the proofs show was the license fee prior to the decision in this cause and the one in force when the alleged infringements took place or were made.

In each and all of which particulars the said defendant excepts to the said report of the said master as erroneous, and appeals therefrom to the judgment of this honorable court.

WEST & BOND,
Sol'rs and of Counsel for J. B. Hurlbut.

Endorsed: Filed Oct. 15th, 1884. William H. Bradley, clerk.

52 Afterwards, to wit, on the tenth day of November, in the adjourned October term of said court, 1884, in the record of the proceedings thereof in said entitled cause, before Hon. Walter Q. Gresham, circuit judge, is the following entry, to wit:

Order.

JOHN J. SCHILLINGER
vs.
J. B. HURLBUT. } In Chancery.

It is ordered that this cause be set for hearing on the tenth day of December next.

53 Afterwards, to wit, on the thirty-first day of October, in the adjourned October term of said court, 1885, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

JOHN J. SCHILLINGER
vs.
J. B. HURLBUT. } In Chancery.

Now come the parties, by their solicitors, and now comes on to be heard the defendant's exceptions to the master's report of damages, and after hearing the arguments of counsel the court takes the same under advisement.

Afterwards, to wit, on the sixteenth day of November, 1885, the following opinion was delivered by Judge Blodgett in said entitled cause:

54 JOHN J. SCHILLINGER *v.* J. B. HURLBUT.

BLODGETT, *J.:*

This case is now before me on exceptions to the master's report fixing the amount of damages for the infringement of the patent.

That master in his report finds that the defendant during the term covered by the decree in this case has laid 7,909 square feet of pavement, and that the complainant had, by his dealings with the public, fixed a royalty of five cents per square foot; hence the mas-

ter finds the damage to be the whole of this royalty, $3,545.45. Exceptions are filed by the defendant to this finding of the master.

After careful examination of the proof I am of the opinion that it does not satisfactorily establish a fixed license for royalty; but the master also finds by his report that the defendant's profit on the work done was four cents per square foot, and I think that sum furnishes a safer and more equitable basis for the assessment of the damages. If the court awards to the complainant all the profit which the defendant has made by the use of the complainant's patent it seems to me the latter cannot complain. The exceptions to the master's award of damages are therefore sustained; but, inasmuch as the facts found by the master furnish a basis by which the court can fix the damages, I find the amount to be $2,836.36, being the defendant's profit at the rate of four cents per square foot.

Counsel are well aware that I have often expressed my own views in reference to this patent; that had the question been an original one before me I would have been very reluctant, on the proof, to sustain the patent, but it had passed through other courts and been so generally sustained that I felt that the rule of comity, without which all patent property would become valueless in this country, required me to follow the rulings of the other courts. In doing this I do not feel bound, in a patent of this character, to sustain the extreme rule of damages against the infringing defendant.

Endorsed: Filed Nov. 16th, 1885. William H. Bradley, clerk.

On the same day, to wit, on the sixteenth day of November, in the adjourned October term of said court, 1885, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following entry, to wit:

Order.

JOHN J. SCHILLINGER and OLIVE G. SALISBURY, Administratrix of the Estate of Elmer J. Salisbury, Deceased,
vs.
J. B. HURLBUT.
} In Chancery.

This cause came on to be heard and was argued by counsel for said parties, respectively, upon exception to the report of Henry W. Bishop, Esq., the master to whom this cause was referred; which report is dated the twenty-seventh day of September, A. D. 1884, and by which there was found and reported to be due from the defendant to the complainants the sum of three thousand five hundred and forty-five dollars and fifty-five cents ($3,545.55) for infringement of reissued letters patent number 4364, of May second, 1871, to John J. Schillinger, for improvement in concrete pavements, sued on in this cause. It is thereupon, upon consideration thereof, ordered, adjudged, and decreed, and the court doth hereby order, adjudge, and decree, that the exceptions to the master's award of damages as aforesaid be sustained, but that inasmuch as

the facts found by the master furnish a basis by which the court can fix the damages without a re-reference the same are hereby computed and fixed at the sum of two thousand eight hundred and thirty-six dollars and thirty-six cents ($2,836.36), being the defendant's profits at the rate of four cents per square foot. It is further ordered, adjudged, and decreed, and the court doth hereby order, adjudge, and decree, that the said defendant pay to the said complainants the sum of two thousand eight hundred and thirty-six dollars and thirty-six cents ($2,836.36), and also the costs of the suit, to be taxed, herein, and that the complainants have execution for said damages and costs against the said defendant, J. B. Hurlbut. It is further ordered, adjudged, and decreed by the court that a perpetual injunction be issued in this cause against the said defendant, J. B. Hurlbut, restraining him, his agents, attorneys, clerks, servants, and workmen, from directly or indirectly making, laying, or constructing concrete pavement containing, embodying, or employing the invention described and claimed in said reissued letters patent number 4364 sued on herein, and from violating or infringing any of the complain-
58 ants' rights thereunder, pursuant to the prayer of said bill, unless an appeal shall be perfected in this case within sixty days by defendant. The said defendant shall give a bond, with surety, to be approved by the court, conditioned for the payment of all damages complainant- shall sustain by the infringement of said patent pending said appeal. In case this decree shall be affirmed, such bond to contain a clause that in the event of the affirmance of this decree a reference may be taken in this court to inquire as to the use of said patented device by defendant since the entry of this decree, and on the report or ascertainment as to such use a summary judgment may be rendered on said bond without suit and as part of the final proceedings of this court in this case; and it is further ordered that the defendant pay the costs of this suit taxed herein, and that execution issue therefor.

59 On the hearing of said cause, on the same day, to wit, on the sixteenth day of November, 1885, the certificate of evidence in said cause was filed in said clerk's office, and is in the words and figures following, to wit:

Certificate of Evidence.

United States Circuit Court, Northern District of Illinois. In Equity.

JOHN J. SCHILLINGER *et al. vs.* J. B. HURLBUT.

Be it remembered that on the trial of the above-entitled cause the parties thereto offered and put in evidence and used upon the hearing to maintain the issues as follows:

The complainants, to maintain the issues on their part, offered and put in evidence on *prima facie* and used at the hearing as follows:

Depositions of Elmer J. Salisbury and Amos H. Perkins in words and figures as follows, to wit:

60 *Complainants' Prima Facie Evidence.*

Circuit Court of the United States, Northern District of Illinois.
In Equity.

JOHN J. SCHILLINGER *et al. against* J. B. HURLBUT.

Testimony taken in the above-entitled cause, pursuant to agreement, at rooms 60 and 61 Honore building, Chicago, before Charles
61 C. Linthicum, notary public, commencing at two o'clock p. m. of Tuesday, January 30th, 1883.

Present: Geo. W. Hey, Esq., of counsel for complainants, and L. L. Bond, Esq., of counsel for defendant.

ELMER J. SALISBURY, sworn for complainants, testifies as follows:

Direct examination by Mr. HEY:

Q. 1. State your name, age, occupation, and place of residence.
A. Elmer J. Salisbury; thirty-eight years; contractor; 3520 Lake Ave., Chicago.
Q. 2. Are you one of the complainants in this cause?
A. Yes, sir.
Q. 3. Are you the licensee of the complainant Schillinger under reissue patent No. 4364, being the patent in suit?
A. Yes, sir.
Q. 4. Will you produce as an exhibit in this case your license mentioned above?
A. Yes, sir.
Q. 5. Have you been and are you engaged in the business of laying cement pavements? If yea, please state how long you have been engaged in said business.
A. Yes; I have for the past five or six years.
Q. 6. Do you know the defendant, J. B. Hurlbut?
62 A. Yes, sir.
Q. 7. State what his business is, if you know.
A. I know him as being in the paving business, either as superintendent or manager of the Portland Cement Paving Company.
Q. 8. Do you know what kind of pavements Mr. Hurlbut makes?
A. He makes what is called cement pavements, either in diamond form or plain flagging.
Q. 9. Have you seen pavements made by Mr. Hurlbut and his men in progress of construction?
A. Yes, sir.
Q. 10. Of diamond blocks and flagging?
A. Yes, sir.
Q. 11. Please describe the process employed by Mr. Hurlbut in constructing cement pavements in flagging.

A. The foundation is first properly prepared and scantling or similar timbers laid down, and then a short timber the width of the walk laid down to make the necessary width of flag; then coarse material consisting of Portland cement, sand, and gravel properly moistened with water and tamped in between the molds or scantling or timbers, after which a mixture of sand and cement in plastic form is spread over the top of the concrete, struck off with a straight edge, floated with a wooden float, and troweled with an ordinary plasterer's trowel. The block is then finished. To form the second block the scantling or short timber is taken up and moved to the proper distance to make the second stone, and then the same
63 process is gone through as described in the former case; then, after the second stone has been troweled, the straight edge is laid across where the two blocks join together; then they are cut with a trowel or similar instrument, usually leaving a V-shaped joint an eighth of an inch in depth and a quarter of an inch wide at the top.

Q. 12. What is the purpose or object of the cut between the blocks which you described as a V-shaped joint?

Objected to as immaterial.

A. It is to control the cracking—to improve its looks.

Q. 13. Please describe the process employed by the defendant in laying diamond block cement pavements.

A. The foundation is prepared as in the previous question; then a triangular-shaped form or mold is placed in proper position, after which the coarse material, as described in flagging, is tamped in position; then the fine plastic mass is spread over the top as before. After those triangular-shaped molds have been filled and finished they are then taken up and moved half the length of the mold to form a square block, the points resting against the three-cornered-shaped blocks already formed, where the same process is gone through as regards the coarse part as before. There are parting strips used consisting of a stick the width of the mold with a piece of rubber on it and two metal points attached to set down between the stones to keep the colors from intermingling in the two stones.
64 Of the two stones last described one is probably a white stone and the other a black one. This black stone is the same as the white, except that some coloring matter like lamp black is put into the fine stuff that forms the top.

Q. 14. Does the defendant's diamond block pavement consist of adhering or separate blocks?

A. Separate blocks, generally speaking, I should think.

Q. 15. Where do the metallic points, which you state are attached to the parting strips, go when the parting strip is placed in position on the block?

A. When the block is finished before the parting strip is taken out they project down between the two stones.

Cross-examination by Mr. BOND:

C. Q. 16. Do you know of any pavement or flagging laid by Mr.

Hurlbut in which there were strips of tar paper or other similar material placed in the joints between the blocks of stone?

Objected to as immaterial.

A. I have just described that he used parting strips with metal points projecting down between the stone.

C. Q. 17. Please explain why you gave such an answer to my question.

A. Because I supposed it answered your question. I just gave in my testimony and testified where he used his parting strips.

C. Q. 18. Do you understand that two little removable hooks are the same thing as a strip of tar paper placed between paving blocks and left there to make the pavement water-proof?

65 A. I did not testify that they were. I did not testify anything about hooks.

C. Q. 19. Do you understand that two little removable points are the same thing as a strip of tar paper placed between paving blocks and left there to make the pavement water-proof?

A. I do not.

C. Q. 20. What do you understand to be the controlling feature in the construction of this class of pavements or footways that controls the cracking?

A. It is having the blocks marked off and made in slabs or separate blocks.

C. Q. 21. If the little V-shaped mark that you have described was made a few inches to the one side of the seam between the blocks would the V groove, an eighth of an inch in depth, control the cracking, or would the seam control it?

Objected to as immaterial and irrelevant.

A. It would be apt to open in both places, as a general thing; one would be irregular and the other would be straight and ship-shape and workmanlike.

ELMER J. SALISBURY.

AMOS H. PERKINS, sworn for the defendant, deposes and testifies as follows:

Direct examination by Mr. HEY:

Q. 1. State your name, age, occupation, and place of residence.

66 A. Amos H. Perkins; forty-eight years; contractor; Chicago.

Q. 3. Please state whether or not you are familiar with the construction of concrete or concrete pavements, and what, if any, experience you have had in the construction of such pavements.

A. I am. I have had ten years' experience.

Q. 3½. Do you know the complainant Salisbury and the defendant, J. B. Hurlbut, in this cause?

A. I do.

Q. 4. Did you hear the testimony of the complainant Salisbury relating to the business of the defendant Hurlbut?

A. I did.

Q. 4½. Are you familiar with the process employed by the defendant Hurlbut in constructing diamond block and concrete flagging?

A. I am.

Q. 5. When did you last see the defendant Hurlbut or his employees engaged in laying concrete or cement flagging, and where?

A. In the latter part of last October, at the corner of Dearborn and Chicago avenue, this city.

Q. 6. Please describe the construction of that pavement and for whom laid, if you know.

A. First, joists are placed seven to eight feet apart in front of the property where the work is to be laid. First, one stone is formed by placing a joist across between the others at right angles—generally at about four feet from place of beginning. In this space a
mortar composed of sand, gravel, and cement is put and thor-
67 oughly tamped, so that the coarse material will be from three
to four inches in thickness, leaving about one-half inch on top for a mortar composed of sand and cement, which is troweled off and made even with the top surface of the joists. Then the short joist that is put in at right angles as before described is taken up and placed about the same distance as before and again filled in. The finer material in the coarse concrete is generally worked next to the joist, so as to make a good, smooth, strong edge. When the top stuff is put on this last stone and finished over on top with a trowel, the joint between the two stone being marked on the outer joist, a trowel is drawn through the top stuff to make a joint straight to correspond with the joint below.

Q. 7. And was this method the one employed by the defendant in constructing the pavement on the corner of Chicago and Dearborn avenue last October?

A. It was; the pavement was on the northwest corner of Chicago and Dearborn avenues.

Q. 8. Do you know for what purpose the cutting instrument was used over the timber line between the blocks on the pavement which you have described? If so, please describe.

A. For the purpose of making the separation between the stones.

Q. 9. Have you, personally, frequently made cement pavements of the character described in your previous answer?

A. I have.

68 Q. 10. And have you worked with the men who were employed by the defendant, or were those men formerly in your employ in constructing such pavements?

A. Part of them were in my employ.

Q. 11. Have you frequently seen the defendant and his employees lay pavements of cement of this character previously described by you?

Objected to for the reason that the question is not limited to the time covered by the bill in this case.

Complainants' counsel here states that no claim is made against defendant by these complainants for pavements constructed prior to the grant of the exclusive license to the complainant Salisbury within the territory therein named.

A. I have.

Q. 12. Please describe briefly the process employed by the defendant in constructing what are termed diamond block pavements.

A. Concrete is made and formed in the same manner as before specified, the separation between the blocks being made to correspond to V-shaped frames, each block being separate; a rubber, wood, or metal strip is used where different-colored blocks are formed.

Q. 13. What is the object of the separation between the concrete blocks?

A. So that the blocks will remain intact and not crack and can be taken up and relaid.

69 Q. 14. And can you state whether or not the method of separation employed by the defendant effects the desired result? I mean where a slight cut is made between the adjoining blocks over the timber line, as described by you in the Chicago and Dearborn avenue job.

A. It does.

Q. 15. Did you observe particularly and carefully the method employed by the defendant in constructing the Dearborn and Chicago avenue pavement last October?

A. I did.

Q. 16. Had you a few days prior thereto made an affidavit in this cause, describing the defendant's method of making these concrete pavements?

A. I had.

Cross-examination by Mr. BOND:

C. Q. 17. In making the surface mark for separation, are not the operatives careful to follow the seam or what has been termed the timber line?

A. They always intend to.

C. Q. 18. When the pavement at the northwest corner of Chicago and Dearborn avenues was finished were there any strips of tar paper or other material different from that used in making the blocks in the joints or along the seams or markings of that piece of pavement?

A. I did not see any.

AMOS H. PERKINS.

70 Complainants' counsel offers in evidence—

1. Certified copy of letters patent of the United States No. 4364 (reissue), to John J. Schillinger, and the same is marked "Complainants' Exhibit Schillinger Patent."

JOHN J. SCHILLINGER.

43

Improvement in Concrete-Pavements.

No 4,364. Reissued May 2. 1871.

Fig. 1

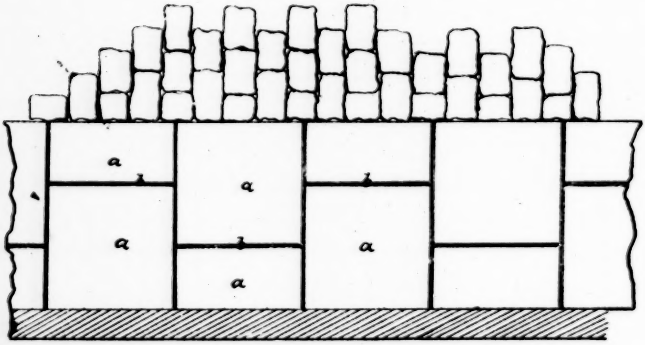
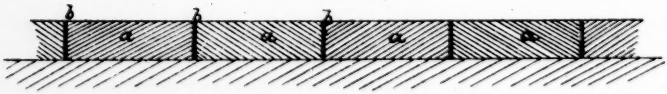


Fig. 2.



Witnesses:
E. F. Kastenhuber
C. Wahlers.

Inventor
John J. Schillinger

No. 215
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v.
Schillinger
et al.
fr. 43

2. Certified copy of disclaimer under said patent, and the same is marked "Complainants' Exhibit Schillinger Disclaimer."

3. Abstract of title to said patent, the certificate of which is dated March 6, 1882, and the same is marked "Complainants' Exhibit Abstract of Title."

4. Original deed from Tomlinson to Schillinger, dated March 1, 1882, and the same is marked "Complainants' Exhibit Tomlinson Deed."

5. Original contract between the complainant Schillinger and the complainant Salisbury, and the same is marked "Complainants' Exhibit Salisbury License."

Counsel for defendant objects to the "Complainants' Exhibit Abstract of Title," for the reason that it is not such a title paper as is recognized in law nor such a paper as the Commissioner of Patents has any lawful authority to make or issue.

71 Certified copy of letters patent of the United States No. 4364 (reissue), to John J. Schillinger, marked "Complainants' Exhibit Schillinger Patent," in words and figures as follows, to wit:

72 COMPLAINANTS' EXHIBIT SCHILLINGER PATENT.

(2–175.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the reissue letters patent granted John J. Schillinger May 2d, 1871, number 4364, for improvement in concrete pavements.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 29th day of September, in the year of our Lord one thousand eight hundred and eighty-two, and of the Independence of the United States the one hundred and seventh.

[L. S.] E. M. MARBLE, *Commissioner.*

(Here follows diagram marked page 73.)

74 Reissue No. 4364.

The United States of America to all to whom these letters patent shall come:

Whereas John J. Schillinger, of New York, New York, has alleged that he has invented a new and useful improvement in concrete pavements (for which letters patent were issued to him, dated July 19th, 1870, which letters having been surrendered the same have been canceled and new letters ordered to issue to him on an amended specification), and has made oath that he is a citizen of

the United States; that he verily believes he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant to the said John J. Schillinger, his executors, administrators, or assigns, for the term of seventeen years from the nineteenth day of July, one thousand eight hundred and seventy, the full and exclusive right and liberty of making, using, and vending to others to be used, the said improvement, a description whereof is given in the annexed schedule and made a part of these presents.

75 In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this second day of May, in the year of our Lord one thousand eight hundred and seventy-one, and of the Independence of the United States of America the ninety-fifth.

[L. S.]

C. DELANO,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

M. D. LEGGETT,
Commissioner of Patents.

UNITED STATES PATENT OFFICE.

JOHN J. SCHILLINGER, of New York, N. Y.

Improvement in Concrete Pavements.

Specification forming part of Letters Patent No. 105,599, dated July 19, 1870; Reissue No. 4364, dated May 2, 1871.

To all whom it may concern:

Be it known that I, John J. Schillinger, of the city, county, and State of New York, have invented a new and useful improvement in concrete pavements; and I do hereby declare the following

76 to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a plan of my pavement. Fig. 2 is a vertical section of the same.

Similar letters indicate corresponding parts.

This invention relates to a concrete pavement which is laid in sections, so that each section can be taken up and relaid without dis-

turbing the adjoining sections. With the joints of this sectional concrete pavement are combined strips of tar paper or equivalent material arranged between the several blocks or sections in such a manner as to produce a suitable tight joint and yet allow the blocks to be raised separately without affecting the blocks adjacent thereto.

In carrying out my invention I form the concrete by mixing cement with sand and gravel or other suitable material to form a plastic compound, using about the following proportions: One part, by measure, of cement; one part, by measure, of sand, and from three to six parts, by measure, of gravel, with sufficient water to render the mixture plastic; but I do not confine myself to any definite proportions or materials for making the concrete composition. While the mass is plastic I lay or spread the same on the foundation or bed of the pavement, either in moulds or between movable joists of the proper thickness, so as to form the edges of the con-
77 crete blocks *a a*, one block being formed after the other. When the first block has set I remove the joists or partitions from between it and the next block to be formed, and then I form the second block, and so on, each succeeding block being formed after the adjacent blocks have set, and, since the concrete in setting shrinks, the second block when set does not adhere to the first, and so on, and when the pavement is completed each block can be taken up independent of the adjoining blocks. Between the joints of the adjacent blocks are placed strips *b* of tar paper or other suitable material in the following manner: After completing one block, *a*, I place the tar paper *b* along the edge where the next block is to be formed, and I put the plastic composition for such next block up against the tar paper joint and proceed with the formation of the new block until it is completed. In this manner I proceed until the pavement is completed, interposing tar paper between the several joints, as described. The paper constitutes a tight, water-proof joint, but it allows the several blocks to heave separately from the effects of frost or to be raised or removed separately whenever occasion may arise without injury to the adjacent blocks. The paper when placed against the block first formed does not adhere thereto, and therefore the joints are always free between the several blocks, although the paper may adhere to the edges of the block or blocks formed after the same has been set up in its place between the joints. In such
78 cases, however, where cheapness is an object the tar paper may be omitted and the blocks formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with sand or dust, and the pavement is rendered sufficiently tight for many purposes, while the blocks are detached from each other and can be taken up and relaid each independent of the adjoining blocks.

What I claim as new and desire to secure by letters patent is—

1. A concrete pavement laid in detached blocks or sections, substantially in the manner shown and described.

2. The arrangement of tar paper or its equivalent between adjoining blocks of concrete, substantially as and for the purpose set forth.

JOHN J. SCHILLINGER.

Witnesses:
W. HAUFF.
E. F. KASTENHUBER.

79 Certified copy of disclaimer under said patent, marked "Complainants' Exhibit Schillinger Disclaimer," in words and figures as follows, to wit:

80 COMPLAINANTS' EXHIBIT SCHILLINGER DISCLAIMER.

(2–175.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the disclaimer filed March 1, 1875, in the matter of the reissue letters patent to John J. Schillinger, April 6, 1871, No. 4364, for improvement in concrete pavements.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 10th day of October, in the year of our Lord one thousand eight hundred and eighty-two, and of the Independence of the United States the one hundred and seventh.

[L. S.] E. M. MARBLE,
Commissioner.

To the Commissioner of Patents:

Your petitioner, John J. Schillinger, of the city and county and State of New York, represents that letters patent of the United
81 States reissue No 4364, bearing date May 2, 1871, were granted to him for an improvement in concrete pavements.

That he has reason to believe that through inadvertence, accident, or mistake the specification and claim of said letters patent are too broad, including that of which your petitioner was not the first inventor, and he therefore hereby enters his disclaimer to the following words: "And since the concrete in setting shrinks, the second block when set does not adhere to the first, and so on," and which occurs near the middle part of the said specification, and to the following words near the end of the specification: "In such cases, however, where cheapness is an object the tar paper may be omitted and the blocks formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with sand or dust, and the pavement is rendered sufficiently tight for many purposes, while the blocks are detached from each other and can be taken up and relaid each independent of the adjoining blocks."

Your petitioner hereby disclaims the forming of blocks from

plastic material without interposing anything between their joints while in the process of formation.

Your petitioner owns the said patent and the whole interest therein, except in the following places or territory, for which he has granted exclusive licenses under royalty or sold rights
82 under said patent, to wit, the counties of Kings, Queens, and Richmond, New York State; Hartford county, Connecticut; the District of Columbia; the States of New Jersey, Georgia, Maryland, Louisiana, Texas, Ohio, Michigan, Missouri, and Illinois, which above-named States and places comprise all the territory for which he has sold or granted exclusive licenses or rights in or under said patent, to the best of his recollection, knowledge, and belief.

New York, February 27th, 1875.

JOHN J. SCHILLINGER.

Witnesses:
GEORGE FULLER.
S. MENDELSUHN.

Ex'd: E. A. M., H. M. H.

83 Abstract of title to said patent, certificate dated March 6, 1882, marked "Complainants' Exhibit Abstract of Title," in words and figures as follows, to wit:

84 Assignors.	Assignees.	Date of assignment.	Date of record.	Invention.	Territory assigned.	Liber.	Page.
John J. Schillinger	J. R. Driscoll, D. J. Curtis, of Springfield, Mass.	Mar. 2, '78	March 5,'81	Concrete pavement; July 19, 1870; ≠ 105,599; reissued May 2, 1871, ≠ 4364.	All his right, title, and interest in said letters patent in the county of Hampden, Hampshire, and Franklin, in the State of Massachusetts, subject, however, to a disclaimer filed March 9, 1875; also agreement between said parties, for conditions of which see record.	N[26]	111
Martin D. Currigan	John McArthur, of Denver, Colorado.	June 10, '81	June 20, '81	Same	All his right, title, and interest in said letters patent for the State of Colorado, subject to disclaimer filed by John J. Schillinger March 9, 1875, as acquired by deed recorded in Liber U[25], page 450, of Transfers of Patents.	A[27]	53
California Artificial Stone Paving Company, per Crowson Smith, president; L. P. Reichling, secretary.	H. P. Martin, of Yolo Co., Cal.	June 9, '81	June 27, '81	Same	All its right, title, and interest in said invention as secured by said letters patent for the county of Yolo, in the State of California.	B[27]	60
John J. Schillinger	Thomas Oliver, of Rochester, N. Y.	Aug. 18, '81	Sept. 13, '81	Same	All his right, title, and interest in said letters patent in Monroe county, State of New York, subject to a disclaimer filed by him March 9, 1875. For conditions see record.	H[27]	86

85	John J. Schillinger.	J. L. Hull, A. Hull, of 103 South 11th St., St. Louis, Mo.	May 22, '79	Oct. 2, '79	Concrete pavement; July 19, 1870, # 105,599; reissued May 2, 1871, # 4364.	All his right, title, and interest in said letters patent in the city and county of St. Louis, State of Missouri, subject, however, to a disclaimer filed March 9, 1875. This grant is exclusive of roof construction. Said Schillinger hereby reserves the right to lay a pavement in front of a new building in the city of St. Louis for which E. Jungenfield holds the contract. Said Schillinger hereby authorizes said J. L. and A. Hull to collect all royalties becoming due from this date in the city and county of St. Louis, Mo., and releases them from all liabilities on account of said patent right For further particulars and conditions see record.	O[24]	363
Same		Charles Kuhl, of Cincinnati, Ohio.	Mar. 1, '80	Mar. 29, '80	Same	All his right, title, and interest in said letters patent in the county of Hamilton, in the State of Ohio, subject, however, to a disclaimer filed at the Patent Office March 9, 1875. This grant is made subject to conditions and stipulations, a wilful infraction of any of which by said grantee shall work a forfeiture of all rights, title, and privileges under said letters patent in said territory.	U[24]	379

Assignors.	Assignees.	Date of assignment.	Date of record.	Invention.	Territory assigned.	Liber.	Page.
Same	Same	May 24, '80	May 31, '80	Same	All his right, title, and interest in said letters patent in the State of Kentucky, subject, however, to a disclaimer filed by him at the Patent Office March 9, 1875. This assignment is made upon conditions named, a wilful infraction of which shall work a forfeiture of all rights, titles, and privileges under said letters patent in said territory. See record for further particulars and conditions.	L[25]	267
Same	M. D. Currigan, of Denver, Col.	Aug. 27,'80	Oct. 2, '80	Same	All his right, title, and interest in said letters patent in the State of Colorado, subject, however, to a disclaimer filed March 9, 1875, and subject also to conditions named.	U[25]	450
86 John J. Schillinger.	Chas. E. Creecy, Justus J. McCarty, & S. J. Wailes.	July 3, '77	July 24,'77	Concrete pavement; reissue May 2,'71,#4364	Revocation & annulment of an agreement between said parties Jan. 12, '72, and recorded in Liber H[15], page 242, of Transfers of Patents; also sworn statement of L. M. Graves and Jos. Grifflin, dep. sheriff-, that they deliver- in person to said parties copies of this instrument.	X[21]	293

Agreement between the following parties:	Charles Schillinger, of Cincinnati, O., & Wm. Von Scharnhorst, of Cincinnati, O.	Aug. 29,'77	Dec. 17, '77	Concrete pavement; July 19, '70, # 105,599; reissue May 2, '71, # 4364.	Said parties hereby agree that they will be partners, under the firm name of Schillinger & Scharnhost, in the business of the manufacture of artificial stone and the laying of the same for the paving of streets, sidewalk-, and halls, under and by virtue of a license now granted to said Charles Schillinger by J. J. Schillinger and under any license that may be granted therefor, said partnership to be carried on from August 29th, 1877, for the period of three years, to be fully completed August 29, 1880; the principal place of business to be Cincinnati, Ohio. The withdrawal for cause of said license or any license hereafter granted by J. J Schillinger shall work an immediate dissolution of said partnership. For further agreements and conditions see record.	I[22]	89
J. J. Schillinger	Phillipp Wolff, of Edgewater, N. Y.	Ap'l 22,'72	Feb'y 16,'78	Same	The exclusive right to make, use, & vend said patent in Richmond county, New York, and should said assignee make default in the payment of certain sums of money named then this deed is to be null & void.	P[22]	139
Same	L. S. Filbert	Feb'y 11,'78	June 7, '78	Same	All his right under said letters patent for the city & county of Baltimore, Md., for laying or paving; also for all improvements & reissues.	B[23]	95

87 Assignors.	Assignees.	Date of assignment.	Date of record.	Invention.	Territory assigned.	Liber.	Page.
John J. Schillinger	Charles B. Dührkoop, of San Francisco, Cal.	Aug. 24, '75	Aug. 26, '75	Concrete pavement; May 2, '71, #4364; reissue of July 19, '70, #105,599.	All his right in said invention for the State of California, upon certain conditions, in default of which said assig-ment & patent shall revert back to assignor. See record.	N^{19}	294
Same	David Tomlinson, of New York, N. Y.	Oct. —, '75	Oct. 25, '75	Same	All his right in said invention as secured by said letters patent in the State of Illinois.	U^{19}	84
Chas. E. Jenkins	Same	July 10, '75	" "	Same	All his right as acquired by deed recorded in Liber N^{18}, page 31, of Transfers of Patent-, being the sole and exclusive right to construct and lay and authorize others to construct and lay concrete pavement under said patent within the States of Ohio, Michigan, Missouri, and Illinois, together with any renewal or extension thereof, upon the conditions mentioned in said license.	U^{19}	85
David Tomlinson	John J. Schillinger, of New York, N. Y.	Oct. 23, '75	" "	Same	All his right in said patent in the States of Ohio, Michigan, and Missouri.	U^{19}	86
John J. Schillinger	David Tomlinson, of New York, N. Y.	" "	" "	Same	All his right in said invention as secured by said letters patent in the State of Illinois, together with any extension or renewal thereof.		

J. J. Schillinger	Charles B. Duhrkoop, of San Francisco, Cal.	Dec. 11, '76	Feb'y 8, '77	Same	All his right in said invention as secured by said letters patent, also for all reissues or improvements on same, for & to the State of California.	G[21]	348
C. B. Duhrkoop	The California Artificial Stone Paving Co.	Dec. 23, '76	" "	Concrete pavement; reissued May 2, '71, ♯4364.	Assigns said reissue letters patent and all the right & interest which was secured to him in said invention by said letters patent for the whole of the State of California.	G[21]	350
88 Lyman Fisher, J. R. Shreve, by his att'y-in-fact, Lyman Fisher; George Shultz.	George Shultz, of Atlanta, Ga.	Sept. 5, '73	Feb. 16, '74	Concrete pavement; July 19, '70, ♯105,599; reissued May 2, '71, ♯4364.	Assigns Chatham county, Georgia, as collateral security for the payment of a certain sum of money. See record.	S[17]	29
Lyman Fisher, Jonathan B. Shreve, by his att'y-in-fact, Lyman Fisher.	Rob't M. Adam, John P. Bondurant, of Augusta, Ga.	Jan'y 17, '74	Feb. 21, '74	Same	All their rights in said invention and patent in the county of Chatham, State of Georgia. See record for particulars.	R[17]	138
Same	Wm. L. Salisbury, Thos. E. Blanchard, of Columbus, Ga.	Feb. 3, '73	Feb. 23, '74	Same	The exclusive right to make, use, and vend within the county of Muscogee, in the State of Georgia, the improvement described in and secured by said letters patent, conditioned. See record.	P[17]	229

* One instrument.

Assignors.	Assignees.	Date of assignment.	Date of record.	Invention.	Territory assigned.	Liber.	Page.
A. C. Westervelt	Willis S. Oviatt, Geo. M. Treat, of Newark, N. J.	May 15, '74	July 25, '74	Same	All his right, title, and interest in said invention and letters patent, upon conditions named, for which see record.	F[18]	175
John J. Schillinger	Chas. Schillinger	Apr. 1, '75	Apr. 14, '75	Concrete pavement; reissued May 2, '71, #4364	All his right in said invention as secured by said letters patent for the State of Indiana, subject to a disclaimer filed March 1st, 1875.	C[19]	237
Agreement between the following parties:	Chas. F. Jenkins, of Chicago, Ill., & Jeremiah B. Selby, of Milwaukee, Wis.	Jan. 17, '73	June 8, '75	Concrete pavement; July 19, '70, # 105,599; reissued May 2, '71, # 4364.	Said Jenkins and Selby hereby agree to form a partnership, to begin on the first day of April, 1873, and to continue for the term of ten years thereafter. Said partnership business shall be carried on in the city of Chicago and shall be the purchase and sale of cements and other material used in the manufacture of artificial stone, the laying of sidewalks, garden walks, floors in hotels, breweries, and other buildings in the method patented by said Schillinger or in any method the firm may choose to adopt, and generally the manufacture and sale of artificial stone for any of the various uses to which it may be applicable. For further agreements & conditions see record.	I[19]	274

89 C. E. Creecy	Justin I. McCarty, of Washington, D. C.	June 17, '72	June 17, '72	Concrete pavement; July 19, '70, #105,599; reissued May 2, '71, #4364.	Assigns his remaining four-sixths of his half intertest, being one-third of the whole of his right as conveyed by said Schillinger by an instrument bearing date Jan'y 12, '72.	F^{15}	415
Wm. T. B. Milliken	William Archer	Sept. 3, '72	Oct. 5, '72	Same	All his right in a license for the county of Union, State of New Jersey, subject to all the conditions therein contained, and subject also to conditions of certain assig-ment, hereto annexed.	U^{15}	395
William Archer	Edmund V. Shotwell & Joseph T. Vail, of Plainfield, N. J.	Nov. 2, '72	Nov. 5, '72	Same	All his right in a certain license recorded in Liber U^{15}, page 393, of Transfer of Patents.	B^{16}	397
The Schillinger Artificial Stone Co.	John J. Schillinger, of New York, N. Y.	Oct. 8, '72	Nov. 8, '72	Same	All its right in said patent for the counties of New York and Westchester, in the State of New York; also all claims and rights of action for damages which have arisen or accrued under said letters patent against any person or persons who have infrin*fring*ed upon said patent in the said counties of New York and Westchester or either of them.	Y^{15}	383
Chas. W. Lowell	Lyman Fisher, of New Orleans, La.	Mar. 6, '72	Mar. 1, '73	Same	All his right in said invention and patent in the State of Georgia.	C^{16}	405

Assignors.	Assignees.	Date of assignment.	Date of record.	Invention.	Territory assigned.	Liber.	Page.
Lyman Fisher	J. R. Shreve, of Brooklyn, N. Y.	Oct. 17, '72	Mar. 1, '73	Same	One undivided half of all his right in said invention and patent in the State of Georgia.	C[16]	407
J. I. McCarty, S. I. Wailes.	Maryland Schillinger Artificial Stone Company, of Baltimore, Md.	Aug. 7, '72	Mar. 22, '73	Same	"All their right in the said right to construct and lay, and to authorize others to construct and lay, said pavement."	O[16]	193
90 A.C. Richards, C.E.Creecy, Edward Renand, A. D. V. Burr, A. Ellsberg, Geo. R. Herrick, Lawrence R. Byrne.	"The Artificial Stone Company" of Washington, D. C.	Nov. 30, '71	Mar. 21, '72	Artificial stone sidewalk; July 19, '70, ≠105,599; reissued May 17, '71, ≠4364. 2.	License to use said patent in the District of Columbia for the term of ten years from the date hereof, subject to the conditions named.	H[15]	156
Lyman Fisher	Chas. W. Lowell, of Jefferson, La.	Mar. 6, '72	Mar. 21, '72	Same	All his right in said invention and patent in the State of Louisiana, meaning to convey hereby the two-fifths interest as acquired by a deed dated Oct. 7, 1871, a copy of which is hereunto annexed & recorded herewith.	K[15]	179
John J. Schillinger	Chas. E. Creecy, Justice I. McCarty, of Washington, D. C.; S. J. Wails, of Baltimore, Md.	Jan. 12, '72	Mar. 28, '72	Same	The sole and exclusive right to construct and lay and authorize others to construct and lay said pavement in the State of Maryland, together with any extension or improvement thereof, subject to the royalty named.	H[15]	242

C. E. Creecy	Justus I. McCarty, of Washington, D. C.; Sidney J. Wailes, of Baltimore, Md.	Mar. 29, '72	Mar. 29, '72	Pavement	Assigns to each of said assignees one-sixth of his one-half of said patent. See deed dated Jan'y 12, 1872.	D[15]	462
John J. Schillinger	Charles E. Jenkins, of New York, N. Y.	May 17, '71	Ap'l 5, '72	Concrete pavement for making artificial pavement; July 19,'70, #105,599; reissue May 2, '71, #4364.	Exclusive right and license to construct and lay and to authorize others to construct and lay said pavement under said letters patent and any renewal and extension thereof in Ohio, Michigan, Missouri, and Illinois on payment of a royalty and on terms, stipulations, and conditions named. See record.	N[16]	31
91 John J. Schillinger.	Benj. W. Hitchcock, of Long Island, N.Y.	April 13,'71	Aug. 2, '71	Artificial stone sidewalks; July 19, 1870, #105,599.	All his right in said invention patent in the county of Queens, in the State of New York, except so far as the same may be applicable to roadways.	Q[16]	44
Same	Wm. T. B. Milliken	May 6, '71	Aug. 8, '71	Concrete pavement; July 19, '70, #105,599; reissued May 2, '71, No. 4361.	Exclusive license to lay pavements on sidewalks under said patent or any renewal thereof in the State of New Jersey, on conditions named, but reserving all interest in said patent or any other patent which may be granted to said Schillinger, so far as the same shall be used upon roadways.	M[16]	170

Assignors.	Assignees.	Date of assignment.	Date of record.	Invention.	Territory assigned.	Liber.	Page.
Wm. T. B. Milliken, Geo. W. Ridgway.	Salmon W. Hoyt, Nelson H. Coykendall.	July 25, '71	Aug. 16, '71	Same	An exclusive license to lay said pavement on sidewalks in the county of Hudson, State of New Jersey, upon the condition named.	O[14]	60
John J. Schillinger	Charles W. Lowell, of New Orleans, La.; Lyman Fisher, of Tom's River, N. J.	Oct. 17, '71	Nov. 13, '71	Same	The exclusive right to make, use, and vend said invention & letters patent in the State of Georgia, subject to the royalty & conditions named. This instrument is made in duplicate.	X[14]	5
Same	A. C. Richards, Geo. R. Herrick, Chas. E. Creecy, A. D. V. Burr, L. R. Byrne, A. Elsberg, Edw'd Renand, all of Washington, D. C.	July 3, '71	Nov. 16, '71	Same	Exclusive right to construct and lay said patent in the city of Washington and District of Columbia on payment of certain royalties and on conditions named.	U[14]	417
W. T. B. Milliken, Geo. W. Ridgway.	Albert C. Westervelt	June 19, '71	Jan. 23, '72	Same	An exclusive license to lay said pavements on sidewalks in the county of Essex, in the State of New Jersey, subject to the conditions named.	X[14]	347

92 COMPLAINANTS' EXHIBIT ABSTRACT OF TITLE.

UNITED STATES PATENT OFFICE.

(2-172.)

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the digest of this office of all assignments, agreements, licenses, powers of attorney, and other instruments of writing found of record up to and including March 1st, 1882, under or relating to letters patent granted to John J. Schillinger July 19, 1870, No. 105,599, reissued May 2, 1871, No. 4364, "concrete pavement."

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this sixth day of March, in the year of our Lord one thousand eight hundred and eighty-two, and of the Independence of the United States the one hundred and sixth.

[SEAL.] E. M. MARBLE,
Commissioner.

93 Original deed from Tomlinson to Schillinger, dated March 1, 1882, marked "Complainants' Exhibit Tomlinson Deed," in words and figures as follows, to wit:

94 COMPLAINANTS' EXHIBIT TOMLINSON DEED.

In consideration of one dollar, lawful money of the United States, to me in hand paid by John J. Schillinger, of the city, county, and State of New York, I do hereby sell and assign to said John J. Schillinger all my right, title, and interest in and to reissue letters patent of the United States No. 4364, granted May 2d, 1871, for an improvement in concrete pavement, for, to, and in the State of Illinois, the same to be held and enjoyed by the said John J. Schillinger to the full end of the term for which said letters patents are granted as fully and entirely as the same would have been held and enjoyed by me if this assignment and sale had not been made.

And I do also assign to the said John J. Schillinger any and all royalties and claims for royalties or damages and any and all actions or causes of actions which I may have against any individual, firm, or corporation for the use or infringement of the said letters patent in said State of Illinois or any portion thereof, and authorize him in my name or otherwise, but at his own expense, to ask, demand, sue for, collect, and receive the same for his own sole use and benefit.

And I also assign unto said John J. Schillinger all my interest in and to a certain assignment, dated June 10th, 1875, made to me by one Charles E. Jenkins, and recorded October 25th, 1875, in the United States Patent Office, so far as it relates to the said State of Illinois.

95 And I do hereby covenant that I am sole owner under said letters patent for and to the State of Illinois, and that I have never authorized or permitted any person, firm, or corporation to use or enjoy any of the rights secured by said letters patent within the State of Illinois.

Witness my hand and seal this first day of March, 1882.

DAVID TOMLINSON. [SEAL.]

In presence of—
CHAS. E. JENKINS.

(2–178.)

Received for record March 14th, 1882, and recorded in Liber S^{27}, page 489, of Transfers of Patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

[SEAL.] E. M. MARBLE,
Commissioner.

Ex'd: F. C. T.

96 Original contract between the complainant Schillinger and the complainant Salisbury, marked "Complainants' Exhibit Salisbury License," in words and figures as follows, to wit:

97 COMPLAINANTS' EXHIBIT SALISBURY LICENSE.

Article of agreement made and entered into this 26th day of August, A. D. 1882, by and between John J. Schillinger, of the city, county, and State of New York, party of the first part, and Elmer J. Salisbury, of the city of Chicago, county of Cook, and State of Illinois, party of the second part, witnesseth.

Whereas letters patent of the United States No. 105,599, dated July 19th, 1870 (reissue No. 4364, dated May 2d, 1871), were granted to the party of the first part for an improvement in concrete pavement;

And whereas the party of the second part is desirous of acquiring the sole and exclusive license to lay pavements under said letters patent in and for the State of Illinois:

Now, therefore, the parties have agreed as follows:

I. For and in consideration of the sum of two thousand ($2,000) dollars in hand paid to the party of the first part by the party of the second part, the receipt of which is hereby acknowledged, the said party of the first part grants unto the said party of the second part the full and exclusive license to lay concrete pavements in and for the State of Illinois.

II. The party of the first part further authorizes the party of the second part to use his name, if desired, in any suit or suits that he may bring to protect his rights under this exclusive license,
98 but such suits are to be prosecuted at the cost and expense of the party of the second part, who hereby agrees to protect

and hold harmless the said party of the first part from costs and charges of said suit or suits.

III. The party of the second part agrees to use suitable materials in laying such pavements under this exclusive license, to employ competent workmen, and to mark all pavements laid by him under this license in the manner required by law.

IV. The party of the second part is authorized to apportion this license as he may see fit.

V. This agreement to bind the legal representatives of both the parties hereto.

In witness whereof the parties above named have hereunto set their hands and seals the day and year first above written, at the city of Chicago, county of Cook, and State of Illinois.

JOHN J. SCHILLINGER, [L. S.]
By DUELL, LAASS & HEY,
His Attorneys-in-Fact.
ELMER J. SALISBURY. [L. S.]

In presence of—
T. LYNDE.
A. H. PERKINS.

It is hereby covenanted and agreed on the part of the said John J. Schillinger, party of the first part, that at the date of this instrument the entire interest under said letters patent reissue No. 4364, of whatever name and nature, is vested in the said John J. Schillinger.

JOHN J. SCHILLINGER, [L. S.]
By DUELL, LAASS & HEY,
His Attornies-in-Fact.

99 And the defendant, to maintain the issues on his part, offered and put in evidence and used at the hearing as follows:

Printed Blue Book of English patent to Auguste Chesneau, No. 350, of the year 1852, for paving, marked "Defendant's Exhibit Chesneau Patent," in words and figures as follows, to wit:

100 "DEFENDANT'S EXHIBIT CHESNEAU PATENT."

A. D. 1852. No. 350.

Paving.

(This invention did not proceed to the great seal.)

Complete specification filed by Auguste Chesneau at the office of the commissioners of patents, with his petition and declaration, on the 12th October, 1852, pursuant to the 9th section of the patent law amendment act, 1852.

I, Auguste Chesneau, of Welford Place, Leicester, in the county of Leicester, oil merchant, do hereby declare the nature of the said invention for "the manufacturing of an indestructible paving" to be as follows:

This process consists in dividing cast iron in small pieces of the size and form of gravel; that division takes place when the cast iron is in fusion. In that state it is thrown through two or three iron sieves placed over a cistern or reservoir filled with water, in which the liquid iron falls and immediately cools. It is in that state that I employ that cast iron for my proposed paving.

101 In that state it may be placed upon the surface of the roads in the same manner as stone used in macadamizing, but as the passing of vehicles and horses would continually disturb the iron it is my intention to bind the iron gravel together by means of a cement which I compose and which is made of rosin, Roman cement, and rosin or linseed oil. Any other sort of bitumen might be employed for that purpose, but I propose that composed by me as obtaining more easily the necessary elasticity and avoiding the effect produced by pressure and weight.

I place those three ingredients in an iron caldron. When they are in a boiling state I introduce the particles of iron. I allow it to boil a short time in order to give it a high degree of heat. I then take it out with a riddled ladle. I place it on the road intended to be paved, keeping it on an uniform thickness of one or two inches, and then beat it down while it is still warm, so that the iron when cold becomes so fixed as not to be liable to be disturbed or to sink.

The apertures made in the roads for the purpose of placing gas and water pipes always occasion much disarrangement to all sorts of paving. My system would be open to the same disadvantage, for it would be necessary to break it and melt it again in order to replace it. To avoid that difficulty I have made wooden panels from two to two and a half inches thick. I unite several of them together with wooden bars nailed. Those panels will be three feet long and two feet wide (more or less). I bind those panels with iron bands and screws. Those bands are wide enough to admit of a portion projecting beyond the surface of the panel, according to the thickness of the paving. The other part of the width is fixed upon the side of the panel.

That iron band is to contain the matter constituting the paving, which I place on the surface of the said panel of the thickness (more or less) and beat down in the manner already specified.

AUGUSTE CHESNEAU. [L. S.]

102 Printed Blue Book of English patent to Charles Jean le Melorel de la Haichois, No. 771, of the year 1856, for paving, marked "Defendant's Exhibit Haichois Patent," in words and figures as follows, to wit:

103 DEFENDANT'S EXHIBIT HAICHOIS PATENT.

A. D. 1856. No. 771.

Paving.

Letters patent to Charles Jean le Melorel de la Haichois, of 39 Rue de l'Echiquier, Paris, and of 4 South street, Finsbury, London, advocate, for the invention of "certain improvements in paving."

Sealed the 12th September, 1856, and dated the 31st March, 1856.

Provisional specification left by the said Charles Jean le Melorel de la Haichois at the office of the commissioners of patents, with his petition, on the 31st March, 1856.

I, Charles Jean le Melorel de la Haichois, of 39 Rue de l'Echiquier, Paris, and of 4 South street, Finsbury, London, advocate, do hereby declare the nature of my said invention for "certain improvements in paving" to be as follows—that is to say:

These improvements consist, first, in an application on the part to be paved of a (beton) composition of lime and sand to the thickness of about six inches.

Second, in a second application of asphalte mixed with stone to the thickness of about two inches.

Third, in a third application of asphalte, pure or mixed with sand, to the depth of about one inch, in which squares or sheets of vulcanized caoutchouc or gutta-percha are embedded at equal distances. In this third application a layer of asphalte of about half an inch in depth is first laid down, and afterwards small squares of vulcanized caoutchouc or gutta-percha, of about half an inch in thickness and half to three-quarters of an inch in breadth, placed upon it. These squares are placed at six to ten inches apart and are provided with iron hooks or ties, at distances of from six to ten inches, which pass through them from side to side. A second bed of asphalte, pure or mixed with sand, is then laid down to the depth of about half an inch, so as to cover the iron hooks or ties, and come up to the level of the squares of caoutchouc or gutta-percha. The third application may be made by first laying down a coating of asphalte mixed with stone, with small wooden cross-pieces of one to two inches in breadth and about one inch in thickness and placing on them the squares of caoutchouc or gutta-percha prepared as above described. In this case the application of asphalte to the thickness of one inch may be effected at one operation.

104 Specification in pursuance of the conditions of the letters patent filed by the said Charles Jean le Melorel de la Haichois in the Great Seal Patent Office on the 26th September, 1856.

To all to whom these presents shall come, I, Charles Jean le Melorel de la Haichois, of 39 Rue l'Echiquier, Paris, and 4 South street, Finsbury, London, advocate, send greeting:

Whereas Her Most Excellent Majesty Queen Victoria, by her let-

ters patent bearing date the thirty-first day of March, in the year of our Lord one thousand eight hundred and fifty-six, in the nineteenth year of her reign, did, for herself, her heirs and successors, give and grant unto me, the said Charles Jean le Melorel de la Haichois, her special license that I, the said Charles Jean le Melorel de la Haichois, my executors, administrators, and assigns, or such others as I, the said Charles Jean le Melorel de la Haichois, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man an invention for certain improvements in paving, upon the condition (amongst others) that I, the said Charles Jean le Melorel de la Haichois, by an instrument in writing under my hand and seal, should particularly describe and ascertain the nature of the said invention and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said letters patent:

105 Now know ye that I, the said Charles Jean le Melorel de la Haichois, do hereby declare the nature of my said invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof—that is to say:

These improvements consist in the employment of lime, sand, asphalte, caoutchouc, gutta-percha, and marine glue and wood for the purpose of forming an even and durable pavement, which substances are applied in the following manner:

A layer composed of lime and sand (beton) is laid down to the thickness of about five inches on the part to be paved; then a layer of asphalte mixed with stones to the thickness of about two inches is applied, after which a layer of asphalte, either alone or mixed with sand, to the depth of about one inch is laid down, in which are embedded at certain equal distances strips or bands of vulcanized caoutchouc or gutta-percha.

In the last application a layer of asphalte of about half an inch in depth is first laid down, and afterwards the strips or bands of vulcanized caoutchouc or gutta-percha or other analogous substances of about half an inch in thickness and from a half to three-quarters of an inch in breadth, so as to form squares or lozenges. The strips are placed from six to ten inches apart and are secured together by iron hooks or ties, at a distance of three to five inches from each other, which hooks pass through them. Instead of using hooks the strips may be bevelled at the edges, so as to be firmly embedded in and secured by the asphalte. When the strips are laid down a second layer of asphalte is applied, so as to be on a level with the strips of caoutchouc.

106 The paving may be constructed by first laying down, on a bed or layer of asphalte mixed with small stones, small cross-pieces of wood (of about one to two inches in breadth and half an inch in thickness) injected according to Dr. Boucheries' process.

Upon these cross-pieces are placed the strips or bands of vulcanized India rubber or gutta-percha, prepared as hereinbefore described.

As asphalte does not naturally adhere to caoutchouc, it is necessary to apply a thin coat of marine glue or other similar substance to those parts to be placed in contact with the asphalte before being laid down; the asphalte, being hot, will cause the marine glue to melt and adhere to it strongly. The strips of caoutchouc should be embedded in and secured to the asphalte during the cooling of the latter.

Having now described the nature of my said invention and the manner in which the same may be carried into effect, I would observe that I do not confine myself to the precise details herein laid down, reserving to myself the right of modifying the same; but what I claim is the method of constructing pavement in the manner hereinbefore described.

In witness whereof I, the said Charles Jean le Melorel de la Haichois, have hereunto set my hand and seal this twenty-third day of September, in the year of our Lord one thousand eight hundred and fifty-six.

CH. J. LE MELOREL DE LA HAICHOIS. [L. S.]

Witness:

M. F. MENNONS.

107 Printed Blue Book of English patent to George Robert D'Harcourt, No. 7991, of the year 1839, for paving, marked "Defendant's Exhibit D'Harcourt Patent," in words and figures as follows, to wit:

108 "DEFENDANT'S EXHIBIT D'HARCOURT PATENT."

A. D. 1839. No. 7991.

Artificial Stone, Marble, &c.

D'Harcourt specification.

To all to whom these presents shall come I, George Robert D'Harcourt, of Howland street, Fitzroy square, in the county of Middlesex, gentleman, send greeting:

Whereas her present most Excellent Majesty Queen Victoria, by her letters patent, under the great seal of Great Britain, bearing date at Westminster, the sixth day of March, in the third year of the reign, did, for herself, her heirs and successors, give and grant unto me, the said George Robert D'Harcourt, her especial license, full power, sole privilege and authority that I, the said George Robert D'Harcourt, my ex'ors, adm'rs, and assigns, or such others as I, the said George Robert D'Harcourt, my ex'ors, adm'ors, or assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein mentioned, should and lawfully might make, use, exercise, and vend within England, Wales, and the town of Berwick-upon-Tweed, and also in all Her Majesty's colonies and plantations abroad, my invention of

"improved artificial granite, stone, marble, or concrete," in which said letters patent is contained a proviso that I, the said George Robert D'Harcourt, shall and will cause a particular description of the nature of my said invention and the manner in which the same is to be performed to be inrolled in her said majesty's high court of chancery within six calendar months next and immediately after the date of the said in part recited letters patent, as in and by the same, reference being thereunto had, will more fully and at large appear:

Now know ye that, in compliance with the said proviso, I, the said George Robert D'Harcourt, do hereby declare the nature of my said invention and the manner in which the same is to be performed are fully ascertained and set forth in and by the following description of the mode of making my improved artificial granite, stone, marble, or concrete and of applying the same to various purposes—that is to say:

I first cast a quantity of resin into a melting pot, and when the resin is perfectly melted I add linseed oil or tallow thereto in proportion to the degree of ductility I wish to give the mixture.
109 The quantity of oil which may be added is from one pint to one gallon to a ton of resin, and the quantity of tallow about from one pound to eight pounds to a ton of resin. The purpose of adding the linseed oil or tallow being to give the resin such a degree of ductility as will enable it to mix with the other ingredients herein subsequently directed to be added, the exact proportions to be used will depend greatly on circumstances, and must be left to the experience and judgment of the operator. I next add to this liquidized resin about twice its weight of whiting or chalk, well pulverized, and stir or agitate the whole till the resin, the oil or tallow, and the whiting or chalk are thoroughly mixed and incorporated with one another, taking particular care to distribute the whiting or chalk as equally as possible throughout the whole mass, and that none of it is left in the state of lumps or patches. I now leave this composition or mastic to stand for about one hour, and then withdraw it from the melting pot in the form of loaves by means of wooden or other moulds. These loaves are now ready for going through the following additional processes in order to convert them into artificial granite or stone: I put one or more of these loaves again into the melting pot, and when they are perfectly melted I add well-picked oakum or other suitable fibrous substance in the proportion of about ten pounds to a ton of the other material, stirring all the while the ingredients of the pot with a spatula or other agitator. When the oakum or other fibrous material has been well incorporated with and diffused throughout the mastic I add from six to eight times the weight of the mastic of perfectly dry sand, stirring again till the sand is thoroughly mixed with the other materials The whole of this composition or mixture is then
110 left to boil for two hours, after which it is in a state fit to be applied as a substitute for natural granite or stone in the following manner—that is to say:

For pavements.—The ground having been duly prepared, a first

layer of the composition is spread thereon (being taken from the melting pot in a fluid or semi-fluid state) to the thickness of about one-fourth of that intended to be given to the whole block or stone. Another layer is afterwards added of three-fourths the thickness of the first, and its surface smoothed by means of hot irons. Railway blocks, columns, pillars, urns, slabs, blocks for building, or other articles usually cut or hewn out of natural stone or granite may be made of this composition by casting it in moulds of the desired shape.

To make artificial marble.—I take the mastic or composition made as first hereinbefore directed and melt it in a clean melting pot, taking great care in the course of melting that no particles of soot, coal, wood, or other foreign matter get into the composition, which might make the polishing of the artificial marble into which it is to be formed difficult if not impossible. When the mastic or composition is perfectly fluid I add thereto thrice its weight of pulverized whiting and stir the whole well together, after which the pot is to be left to boil for about two hours; I then add natural marble of different colours, broken into small pieces, in the proportion of two parts for each part of the resinous and chalky composition. The pieces into which the natural marble is broken must not be so large as that any of them shall get detached in the course of polishing the artificial marble, as hereinafter directed, so as to leave holes and flaws in the surface thereof. Instead of the broken marble
111 small pebbles or large pebbles or flint broken into small pieces may be used, in which case the flint or pebbles must be perfectly clean and dry, with no particles of earth or dirt or sand adhering to them. This mixture must be left to boil for about an hour, and must be stirred the while so as thoroughly to intermix and incorporate the ingredients with one another.

The mode of applying this composition so as to produce an artificial marble suitable for tesselated or other pavements is as follows: The ground or floor upon which it is intend d to lay the pavement being duly prepared, the whole surface is to be covered with a first layer or foundation of the artificial marble composition of about one-fourth of the entire thickness of the intended pavement. The design or pattern desired to be given to the pavement is formed in zinc or tin moulds or frames of three-fourths the depth of the first layer or foundation, and these moulds or frames being placed upon the first layer or foundation, the fluid composition prepared as aforesaid is to be poured into them. As soon as the contents of one set of patterns or designs is hard and dry the metal frames or moulds are to be removed and a further portion of the pattern proceeded with, and so on to the outer border or edge of the piece of pavement or parquetry to be formed. The surface of pavement so formed, being perfectly dry and hard, may be ground and polished in the same way that natural marbles are polished. When the surface is made perfectly smooth and to the eye perfectly homogeneous a varnish of gum lac may be passed over it. The artificial marble, whether employed for pavement or other purposes, will be, to a certain degree, of the colors of the materials of which it is composed,

but in every case the appearance will be, more or less, that of natural marble.

112 And having now fully described my said invention and the manner in which the same is to be performed, I declare that what I claim as new and of my invention is the mode or modes hereinbefore described of making an artificial granite, stone, marble, or concrete; and I declare that I do not confine myself to the precise proportions of ingredients hereinbefore indicated or the prescribed order of their addition to one another or to the precise lengths of times which they are directed to remain combined between each operation hereinbefore described, although those which I have stated are what I would recommend and have found in practice to be the most beneficial; and such my invention being, to the best of my knowledge and belief, entirely new and never before used within that part of her said majesty's United Kingdom of Great Britain and Ireland called England, her Dominion of Wales, Town of Berwick-upon-Tweed, or in any of her said majesty's colonies and plantations abroad, I do hereby declare this to be my specification of the same, and that I do verily believe this my specification doth comply in all respects, fully and without reserve or disguise, with the proviso in the said hereinbefore in part recited letters patent contained; wherefore I hereby claim to maintain exclusive right and privilege to my said invention.

In witness whereof I, the said George Robert D'Harcourt, have hereunto set my hand and seal this sixth day of September, one thousand eight hundred and thirty-nine.

[L. S.] G. R. D'HARCOURT.

And be it remembered that on the sixth day of September, in the year of our Lord 1839, the aforesaid George Robert D'Harcourt came before our said lady the Queen in her chancery and acknowledged the specification aforesaid and all and everything therein contained and specified in form above written; and also the specification aforesaid was stamped according to the tenor of the statute made for that purpose.

Inrolled the sixth day of September, in the year of our Lord one thousand eight hundred and thirty-nine.

113 Printed Blue Book of English patent to Richard Tappin Claridge, No. 7489, of the year 1837, for cement for paving and building purposes, marked "Defendant's Exhibit Claridge Patent," in words and figures as follows, to wit:

114 "DEFENDANT'S EXHIBIT CLARIDGE PATENT."

A. D. 1837. No. 7489.

Cement for Paving and Building Purposes.

Claridge's specification.

To all to whom these presents shall come I, Richard Tappin Claridge, of Salisbury street, Strand, in the county of Middlesex, gentleman, send greeting:

Whereas her present most Excellent Majesty Queen Victoria, by her letters patent, under the great seal of Great Britain, bearing date at Westminster, the twenty-fifth day of November, in the first year of her reign, did, for herself, her heirs and successors, give and grant unto me, the said Richard Tappin Claridge, her especial license, full power, sole privilege, and authority that I, the said Richard Tappin Claridge, my ex'ors, adm'ors, and assigns, or such others as I, the said Richard Tappin Claridge, my ex'ors, adm'ors, or assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend within England, Wales, and the town of Berwick-upon-Tweed the invention of "a mastic cement or composition applicable to paving and road-making, covering buildings, and various purposes to which cement mastic, lead, zinc, or composition are employed," communicated to me by a certain foreigner residing abroad, in which said letters patent is contained a proviso that I, the said Richard Tappin Claridge, shall cause a particular description of the nature of the said inven-
115 tion and in what manner the same is to be performed to be enrolled in Her Majesty's high court of chancery within six calendar months next and immediately after the date of the said in part recited letters patent, as in and by the same, reference being thereunto had, will more fully and at large appear:

Now know ye that, in compliance with the said proviso, I, the said Richard Tappin Claridge, do hereby declare the nature of the said invention to consist in a combination, by means of heat, of certain substances hereinafter described into a mastic cement or composition applicable to paving and road-making and various purposes to which cement mastic, lead, zinc, or composition are employed, and one of such substances is a natural compound, consisting principally of carbonate of lime and bitumen with a small proportion of aqueous and other matter, and such natural compound is commonly called or known by the name of asphalte or asphaltos, or calcareous asphalte, asphaltic mineral, or asphaltic rock, or asphaltic stone, and such natural compound is hereinafter called asphalte. It is found at Pyrimont near to Seyssel, in the department de l'Ain, in the Kingdom of France, and in other parts of the Jura Mountains and in other places in great abundance, and the other of such substances is bitumen or mineral or other pitch.

And I do hereby describe the manner in which the said invention is to be performed by the following statement: I take the said asphalte in its native state, as it is extracted in masses from the mine, and I greatly prefer for the purpose of my invention the asphalte from Pyrimont aforesaid; the said asphalte from Pyrimont aforesaid contains, in addition to a small portion of aqueous and other matter,
116 carbonate of lime and bitumen in about the proportion of ninety parts carbonate of lime to about ten parts of bitumen, and the cement formed according to the said invention from the said asphalte of Pyrimont and bitumen is better than that formed from any other asphalte which I have yet been able to procure, although asphalte is found in other places, and I reduce the asphalte to powder. The asphalte may be reduced to powder solely by mechanical means, but the reduction thereof to powder is facilitated by heat. I usually place the masses of native asphalte in a furnace or oven, the bottom whereof is made of plate iron. In about half an hour, by the application of a brisk fire, the asphate falls or is readily reduced to powder. The asphalte, after having been exposed to heat, as above mentioned, or otherwise, or reduced to powder or small parts by mechanical means, is then passed through a sieve, the meshes of which are about one-fourth of an inch square. The asphalte which has passed through such sieve is in a fit state to be mixed with the bitumen; or mineral or other pitch is found in a natural state, combined with earthy or other matter, in great quantities in the neighborhood of Pyrimont and in other places. I have ordinarily used the bitumen found in the neighborhood of Pyrimont, but the bitumen as found elsewhere may be used without injuring the quality of the cement produced, or other pitch may be used instead of such mineral pitch as aforesaid. The bitumen is freed from its extraneous matter in the ordinary way. In forming the cement or composition according to the said invention, when I use the asphalte of Pyrimont and the bitumen or mineral pitch also from the neighborhood of Pyrimont, I take about ninety-three parts of asphalte, reduced to powder and passed through such sieve
117 as aforesaid, to about from seven to ten parts of such bitumen or mineral pitch. The quantity of bitumen intended to be used is first placed in a melting cauldron or furnace, and when it is dissolved the powdered asphalte is added gradually. The mixture is kept carefully stirred in order that it may not be burnt, and also that the asphalte and bitumen may be perfectly amalgamated. The mixture is kept over the fire carefully stirred until the whole is thoroughly combined and is nearly fluid. This combination is the mastic cement or composition according to the said invention. The melting cauldron or furnace should be kept over rather a slow fire until the mixture is nearly in a state of ebullition; it then gives out a light white smoke in jets, and it is fit for use. When other asphalte is used, instead of the asphalte of Pyrimont, the quantity of bitumen to be added will vary according to the particular nature of the asphalte, and the proper quantity will easily be found by trial; and when bitumen or mineral or other pitch than that from the neigh-

borhood of Pyrimont is used the precise proportion will be easily determined by trial.

In applying the said cement or composition to paving I add to about every two hundred pounds weight of the nearly fluid mastic cement about a half bucketful of very small clean and hot gravel or sand. This is carefully stirred up with the mastic, and as soon as it is sufficiently fluid—that is, as soon as the mastic begins to give out the light white smoke previously described—it is fit for use. It may then be run into molds and remain until cold, when it will form blocks or slabs, which may be laid upon any proper foundation. One consisting of concrete and mortar is usually adopted. These blocks
or slabs are cemented together by pouring the fluid mastic
118 cement, either mixed as aforesaid with fine gravel or sand or without fine gravel or sand, between the interstices of the blocks or slabs. Sometimes a thin coating of mastic cement is spread over the foundation and the blocks or slabs are embedded therein. In such case the cement is also poured in between the interstices, as above described.

If it be desired that the pavement should be ornamented so as to represent Mosaic or other work the process of forming the blocks or slabs is as follows: First, a large surface is formed, either of wood or plaster, upon which the required pattern is drawn. This surface, or a convenient portion thereof, is enclosed with iron bars of the intended thickness of the slab. Over this surface a thin coat of transparent glutinous size is spread. As the following work advances pebbles of various colors, pieces of porcelain ware, earthern ware, glass, or other materials of the required forms and colors are deposited upon their allotted portions of the pattern, either to represent foliage or fretwork or any other devices. By means of the weak size they are very lightly retained in their places. The mastic cement or composition, heated as above and either mixed with fine gravel or sand as aforesaid or unmixed, is poured into the space enclosed with iron bars as aforesaid. This mastic cement or composition fills up the interstices between the pebbles, pieces of porcelain ware, earthen ware, glass, or other materials and forms with them a hard slab. This is inverted, and slabs thus formed are cemented together in the same manner as blocks or slabs are previously described to be cemented.

In forming ways or paths I usually proceed thus: Upon a proper foundation I place two flat iron bars paralled to each other at a convenient distance from each other—say from three to four
119 feet. These bars are of the thickness to which the mastic cement or composition is intended to be spread, usually about half an inch thick. Between these bars the fluid mastic and fine gravel or sand, mixed as aforesaid, is poured and spread and the surface made regular and uniform by passing a thick piece of wood with one straight edge backwards and forwards upon the iron bars. Upon this surface, while still in a semifluid state, I usually sift fine hot gravel, which I beat into the mastic with wooden stampers. When the mastic is set the operation is repeated until the surface required for the way or path is covered. As the operation proceeds

the surface of the cement already set renders the use of one of the iron bars unnecessary.

I apply the said cement in road-making either superficially, in manner hereinafter mentioned—that is to say, upon the surface of a road formed of the usual materials in the usual way, and the bottom whereof has undergone the usual preparation, I pour the said mastic cement or composition, either with or without fine gravel or sand, when the same is heated just so as to give out the light white smoke aforesaid, and the said mastic cement or composition forms with such stones a hard and compact surface—or I apply the said mastic cement under the hard materials, and in such case I spread a thin coating of the said cement, either mixed with or without fine gravel or sand, between the substratum and the hard materials for the purpose of preventing the hard materials being injured by the land springs.

In applying the said cement or composition for the purpose of covering buildings I usually cover the roof with canvas similar to that used by paper-hangers, stretched tolerably tight*ly*, and upon this canvas I spread a layer of the said mastic cement, heated
120 as last aforesaid, to about the thickness of four-tenths of an inch, and upon the surface of the said mastic, and when the same is in a semi-fluid state, I sift gravel, previously heated in a cauldron, and as the mastic sets I beat the said gravel into the said surface of the said mastic with flat wooden stampers about fifteen inches long and nine inches broad until the gravel is incorporated into the substance of the said mastic.

The process of applying the said mastic to the lining of tanks, reservoirs, and various purposes to which cement mastic, lead, zinc, or composition is employed is very similar to that previously described. In such linings no gravel or sand is used with the said mastic, but a coating thereof is applied whilst the said mastic is of the heat hereinbefore mentioned (that is to say), when it just begins to give out a white light smoke, previously described. For the bottom surface of tanks or reservoirs a simple covering of the said mastic applied in the manner aforesaid is sufficient. For the sides of such tanks or reservoirs the face of each brick which is intended to be inwards and exposed to the water is first covered with a thin coat of the said mastic cement or composition. This is done by laying the bricks side by side on a level of ground as if they were to form a pavement; then the fluid mastic is thinly spread over their whole surface as soon as it begins to set, which is in a few seconds, and before it becomes hard. The blade of a large knife is passed between the bricks, cutting the mastic through; at the same time the process leaves each brick with one face covered with the said mastic cement. This done, the walls or sides of the tanks or reservoirs are built and each brick is set in fluid mastic instead of calcareous mortar or cement; and for greater security a space of about half an inch is left between
121 the inner and outer bricks which form the side walls of the tanks or reservoirs. This space is filled up with the fluid mastic as the brick-work advances. This is the process usually adopted.

From the above descriptions of the said mastic cement or composition it may easily be applied to various other purposes to which cement mastic, lead, zinc, or composition is employed.

And whereas I do not claim as the said invention the mode of reducing the said asphalte to powder or the separate use of the said asphalte or bitumen or mineral or other pitch or mastic cement or composition, but I do claim as the said invention the combination, by means of heat, of asphalte, meaning thereby a natural compound consisting principally of carbonate of lime and bitumen, with a small portion of aqueous and other matter, by whatever name or names such natural compound be called or known, and bitumen or mineral or other pitch into a mastic cement or composition applicable to paving and road-making, and various purposes to which cement mastic, lead, zinc, or composition is employed; and such invention being, to the best of my knowledge and belief, entirely new and never before used within that part of Her Majesty's United Kingdom of Great Britain and Ireland called England, her said majesty's Dominion of Wales, or the town of Berwick-upon-Tweed, I do hereby declare this to be my specification of the same, and that I do verily believe this my said specification doth comply in all respects fully and without reserve or disguise, with the proviso in the said hereinbefore in part recited letters patent contained; wherefore I do hereby claim to maintain exclusive right and privilege to the said invention.

In witness whereof I, the said Richard Tappin Claridge, have hereunto set my hand and seal this twenty-fourth day of May, in the year of our Lord one thousand eight hundred and thirty-eight.

R. T. CLARIDGE. [L. S.]

And be it remembered that on the twenty-fourth day of May, in the year of our Lord 1838, the aforesaid Richard Tappin Claridge came before our said lady the Queen in her chancery and acknowledged the specification aforesaid, and all and everything therein contained and specified in form above written; and also the specification aforesaid was stamped according to the tenor of the statute made for that purpose.

Inrolled the twenty-fifth day of May, in the year of our Lord one thousand eight hundred and thirty-eight.

122 Printed Blue Book of English patent to Francis Coignet, No. 2659, of the year 1855, for artificial stone and cement, marked "Defendant's Exhibit Coignet Patent," in words and figures as follows, to wit:

123 "DEFENDANT'S EXHIBIT COIGNET PATENT."

A. D. 1855, 26th November. No. 2659.

Artificial Stone and Cement.

Letters patent to Francois Coignet, of 90 Rue Hauteville, Paris, in the Empire of France, for the invention of "certain improvements in the use and preparation of plastic materials or compositions to be used as artificial stone or as concrete or cement for building and other purposes."

Sealed the 20th May, 1856, and dated the 26th November, 1855.

Provisional specification left by the said Francois Coignet at the office of the commissioners of patents, with his petition, on the 26th November, 1855.

I, Francois Coignet, of 90 Rue Hauteville, Paris, in the Empire of France, do hereby declare the nature of the said invention for "certain improvements in the use and preparation of plastic materials or compositions to be used as artificial stone or as concrete or cement for building and other purposes" to be as follows:

124 The improvements relate to the production of artificial stone, concrete, or cement from various combinations of sands, gravels, broken flint, broken stone, burnt or unburnt soil, more or less clayey, cinders, and coal refuse, scoria, wood ash, dross, and residue of metallurgical works, natural or artificial puzzolonas with unctuous or hydraulic chalk, very fine sand, such as that of downs and heaths, or a silicious one, similar to that of Fontainbleau and Montmerency, in France, & in the employment of such matters when compounded in the formation of houses and other buildings, cellars, vaults, raised walls, arched and horizontal platbands, forming the upper part of all bays, doors, and windows, roofing in the form of earth-works, platforms, and flagging, of one or many colors, mouldings and ornaments in relief upon the surface of walls, cornices, balusters, balconies, fillets, entablatures, columns, and capitals—in short, all that comes under the head of masonry work in the construction of houses and habitations, such as manufactories, workshops, vaulted or otherwise, furnace walls, foundation stones for placing steam-engines, pumps, and machines of all kinds and descriptions, platforms, and flagging for workshops and yards, &c., hydraulic and road-works of every description, sewers, aqueducts, bridges, culverts, viaducts, dykes, dams, sluice-gates, canals, water reservoirs, &c.

The matters to be mixed are pounded together, and when used the desired forms are given by moulding and compression on the wall or other formation and repeating the operation till the structure desired is obtained, the whole without brick or stone facing and without wanting to use any coat.

Specification in pursuance of the conditions of the letters
125 patent filed by the said Francois Coignet in the Great Seal Patent Office on the 26 May, 1856.

To all to whom these presents shall come I, Francois Coignet, of 90 Rue Hauteville, Paris, in the Empire of France, send greeting:

Whereas her most Excellent Majesty Queen Victoria, by her letters patent, bearing date the twenty-sixth day of November, in the year of our Lord one thousand eight hundred and fifty-five, in the nineteenth year of her reign, did, for herself, her heirs and successors, give and grant unto me, the said Francois Coignet, her special license, that I, the said Francois Coignet, my executors, administrators, and assigns, or such others as I, the said Francois Coignet, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Ise of Man, an invention for "certain improvements in the use and preparation of plastic materials or compositions to be used as artificial stone, or as concrete or cement for building and other purposes," upon the condition (amongst others) that I, the said Francois Coignet, my executors and administrators, by an instrument in writing, under my or their or one of their hands and seals, should particularly describe and ascertain the nature of the said invention and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said letters patent:

Now know ye that I, the said Francois Coignet, do hereby
126 declare the nature of my said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement—that is to say:

The improvements relate to the production of artificial stone, concrete, or cement from various combinations of sands, gravels, broken flint, broken stone, burnt or unburnt soil more or less clayey, cinders, and coal refuse, scoria, wood ash, dross and residue of metallurgical works, natural or artificial puzzolanas with unctuous or hydraulic chalk, very fine sand, such as that of downs and heaths, or a silicious one, similar to that of Fontainebleau and Montmorency, in France, and the employment of such matters when compounded in the formation of houses and other buildings, cellars, vaults, raised walls, arched and horizontal platbands, forming the upper part of all bays, doors, and windows, roofing in the form of earth-works, platforms, and flaggings, of one or many colours, mouldings and ornaments in relief upon the surface of walls, cornices, balusters, balconies, fillets, entablatures, columns, and capitals—in short, all that comes under the head of masonry work in the construction of houses and habitations, such as manufactories, workshops, vaulted or otherwire, furnace walls, foundation stones for placing steam-engines, pumps, and machines of all kinds and descriptions, platform and flagging for workshops and yards, &c., hydraulic and road works of

every description, sewers, aqueducts, bridges, culverts, viaducts, dykes, dams, sluice-gates, canals, water reservoirs, &c. The matters to be mixed are pounded together, and when used the desired forms are given by moulding and compression on the wall or other formation and repeating the operation till the structure desired is obtained, the whole without brick or stone facing, and without wanting to use any coat.

127 But that the nature of my said invention may be more fully understood, I will proceed to explain the composition and some of the modes of using such plastic material or composition.

1st. I compose the concrete of sand, grits, metals, and broken stones, to which I add a certain proportion of more or less clayey but crude (that is to say, unburnt) soil, the whole being mixed with a certain proportion of ordinary or hydraulic lime.

2nd. I compose it also of sands, grits, metals, and broken stones, with cinders and scoriæ of coals and metals, of more or less clayey earth, but burnt, and with natural or artificial puzzolana, adding these various materials either jointly or separately and mixing to the whole a certain proportion of ordinary or hydraulic lime.

3rd. I compose it also with very thin sand (such as landes, downs, sea sands, sands similar to those of Fontainebleau and Montmorency, marly or clayey sands), with addition of coal or metal cinders and scoriæ, more or less clayey soil, but burnt, natural or artificial puzzolana, and especially, if necessary, of marly or clayey but burnt sands, the whole being mixed either jointly or separately with a certain proportion of ordinary or hydraulic lime.

For the manufacture of the said concretes I use the ordinary or hydraulic lime, slackened on the ordinary plan, in order that it may form a paste as solid as possible. The cinders and scoriæ of coals, the burnt clayey earth, the metal ashes and scoriæ, and the natural or artificial puzzolana must be used under the form of very thin powder, their tenuity giving much more energy to their action, and consequently permitting their quantity to be considerably lessened, as also that of the ordinary or hydraulic lime. How-

128 ever, in places where coal cinders are abundant, it will be unnecessary to grind them to powder, and they may be used as supplied from the furnaces. In such cases a greater proportion of cinders is to be employed for the manufacture of the concrete, and the cinders can even be used alone with lime. The sand, gravels, or grits must be as clear as possible of clayey soil or crude marls.

The mixture of the various materials that are to compose the concrete is effected by machinery. It can be completed at once, but then the operation is more difficult, and requires more time and care, without ever giving a concrete wholly homogeneous. I consequently prefer to proceed as follows: To prepare the concrete No. 1 I mix by first crushing ordinary or hydraulic lime with the sand, grits, gravels, and broken stones, and by a second grinding I mix to the mortar obtained by the first crushing more or less clayey crude soil. In this case the crude earth must be wetted or crumbled, so that it

may become easily divided and speedily mixed. To prepare the concretes Nos. 2 & 3 I mix by the first crushing ordinary or hydraulic lime with the coal cinders and scoriæ, burnt earth, metal cinders and scoriæ, natural or artificial puzzolanas, and also the burnt marly or clayey sand, if employed. All the latter materials can be put in the mixture jointly or separately. Afterwards I mix the mortar obtained by the first crushing with the sands, grits, broken stones, and thin sands. The above concretes, whatever may be their composition, must be obtained as a very solid and almost pulverulent paste, in order to resist the percussion of hard bodies, and also to agglomerate better. When the concrete is perfectly pounded and has the appearance of a very thick paste I cast *them* in a
129 mould established on the wall itself, or on the place where a work of masonry is to be built, and either above or under the ground. The mould has in the interior the shape of the intended part of building. I cast thin layers of concrete into this mould established on the wall, and I mould, ram, or pile up, agglomerate, and compress it by the repeated percussion of some hard and weighty body. When the mould is filled I disjoint it and bring it to any other place to fill it again. The mould can also be left filled, if thought necessary, and only disjoined after the concrete has become hard in the mould.

By the use of my concrete in moulds on the wall as aforesaid I am enabled to erect any building whatever, either solid or hollow or in relief, and by the moulding of the concrete on the wall I am enabled to form a monolith building, whatever may be its mass, height, or disposition. The same concretes can also be used to manufacture, bricks, tiles, pipes, and artificial stones of any description or shape whatever, by means of a piling and compressing in moulds specially disposed and having in the interior the form or shape of the desired object. The said artificial stone can, moreover, have all dimensions whatever and be destined to any desired purpose.

Under the name of masonry I understand every building of stone or brick, either upon the ground or under, and of whatever form, use, and dimensions, and, in fact, anywhere. By means of my concrete I build these constructions without any facing, casing, or basement whatever of stone or brick, which do not enter in the building, even for the circumference of openings, doors, and windows, or as angle or band stones, cornices, entablatures, or ornaments. In these buildings are comprised specially any con-
130 structions to be used as habitations of any size, form, and destination; also of cellars with their vaults. The said cellars, being built of concretes erected with full walls and without openings, by means of general floors, also of concrete, and established on the whole area of the purposed building, are consequently wholly tight and inaccessible to the outward water. Also any other floors of moulded concretes to replace everywhere the brick pavements, flag-stones, shingles, and compartment ceiling; and, if necessary, I can also form roofings—any roofings whatever—of any size, surface, destination, and situation, established either on vaults or on iron, cast iron, or wood carpentry, or established as follows—that is to say:

This new description of floorings is established by laying on the walls to support the flooring a certain number of iron stop planks, parallel one to another, and reposing on the walls by their ends, so as to be completely supported by the whole thickness of the wall. The number and strength of the said iron plank is in proportion to the pitch and to the area of flooring to establish; for instance, for a flooring of 15 ft. to a side, or 225 square feet, I have employed three iron planks 4½ ins. deep, of which 3 feet weighed about 22 lbs.; but instead of iron planks I can establish iron rods placed at convenient distances apart one from the other, and traversing through and through the four walls supporting the flooring, so that these iron rods cross symmetrically one another, and look somewhat like a chess-board. These rods, being in the shape of a screw and having a nut at each end, will prevent the walls from losing their perpendicularity. Should the flooring have a great span and a large area, strong iron beams would be placed at convenient distances, and the iron planks and rods would rest on these beams. Afterwards (after the establishing of either iron
131 planks or iron rods) I arrange beneath, at a distance of at least 2½ inches, a false flooring, similar to that commonly used to build the ordinary plaster ceilings. This false flooring is to have the form intended to be given to the under part of the floors—that is to say, either an horizontal form or with compartments, coving, vossures, either hollow or in relievo or with ornaments, &c. Afterwards I pour on the false flooring my plastic material, which is rammed or beaten down, agglomerated, and compressed, as hereabove described, and I add by degrees new concrete or plastic material until the beams, planks, and rods be wholly covered by the concrete and the total thickness of the floor be attained. The above part or surface of the flooring must be leveled according to the pattern or by any method whatever. Afterwards the concrete is left to harden during a sufficient time, and when hard the false flooring is taken away. In order to increase the hardness of these floorings and avoid the alkalinity of the lime the surface may be washed with a dissolution of biphosphate of lime. When this operation is finished I have only to give a coating of paint to the lower part and a coat of encaustic on the part of above to complete the flooring. By this plan I build floorings with an advantage, as regards economy and solidity, much superior to all ordinary systems of floorings.

My concretes or plastic materials are also used for building roofs of any shape whatever, as cupolas, spherical vaults, terraces, or garret roofs. As to the terrace roofs they are only floorings built according to the plan above described—that is to say, by means of beams, planks, or rods drowned in the plastic material. I have only to observe that in this case a stronger washing with
132 biphosphate of lime will be required in order better to prevent the atmospheric actions; and, moreover, the above surface must have the necessary declivity for the running of the water. As to the curb, mansard, spheric, and cupola roofs, I establish a frame or arch work, having the shape to be given to the roof

and bearing in juxtaposition with the walls forming the circuit of the building on which the roof is to be established. Then on or *and* continuing these walls I put new concrete or plastic material, but successively, and leaning on the frame-work, which in this case is to be used as a mould, I ram, pile up, and agglomerate as usual. The whole circumference of the said wall must be made simultaneously and by concentric layers till the top is reached. This top may be terminated by an opening or lantern or otherwise. The outer surface is carefully polished, and when the concrete is become hard and dry I wash the outer surface with a solution of biphosphate of lime, and I take away the frame-work. The trenches and gutters may also be reserved in the concrete without employing any special pipes or any casing of cement or metal.

My concrete or plastic material and the manner of using the same can be applied to any agricultural or industrial workshops, either covered with concrete or not; to all the workshops, floorings, walls, & passages; also to any shed, docks, or warehouse; to any hydraulic works whatever, such as large aqueducts, tanks, and reservoirs, mill-courses, dams, weirs, dikes, moles, piers, quays of whatever description, canal banks, bridges, culverts, sewers, drains, ditches, &c.; to any cisterns, cesspools, pits of all descriptions, gasometer pits, tan pits, retting pits, ovens for the manufacture of china and earthenware, water tanks or reservoirs of any shape and size whatever; to all ordinary road-works, such as retaining walls, bridges, culverts, tunnels, parapets, pavement, floors covering the road; to all works for railways, such as tunnels, aqueducts, viaducts, bridges, culverts, retaining walls, quays, crane mass-works, turn-plate mass-work, or mass-work for any other machinery, sewers, pavements, workshops, stations, warehouses, docks, and sheds, either covered with concrete or not, with their floors, fence walls, covers, &c., girders to support rails, tank columns, tanks—in short, any masonry works used for railways; to any underwork masonry whatever, silos, and storehouses.

133

Having thus described the nature of my said invention, I would have it understood that what I claim is—

Firstly. The introduction in the composition of concretes or plastic material of certain hydraulifying substances before referred to, in the form of thin powder, such as the coal cinders & scoriæ, metal-work cinders & scoriæ, burnt clayey earth, natural or artificial puzzolana, which substances in their state of division can easily combine with lime, render hydraulic the unctuous lime, increase the quickness and energy of the hardening of hydraulic lime, and, above all, by the use of the whole system, admit of lessening the quantity of lime to be introduced in the concretes or plastic materials without any prejudicial action as to the solidity.

Secondly. The composition, preparation, and manner of employing the above-described concrete or plastic material into which I introduce more or less clayey crude earth, which allows of reducing the quantity of lime and consequently to lessen the cost. This concrete is especially useful for agricultural purposes, as neither water nor frost can act on it.

Thirdly. For obtaining concrete by means of thin sand, so that this concrete becomes quickly hard and convenient to any building purposes.

Fourthly. For the use of the biphosphate of lime in order to encrease the hardness of the surface of the concrete to render the same unpermeable and to destroy the alkalinity of lime, which allows the application of paints having a fat or resinous basis.

In witness whereof I, the said Francois Coignet, have hereunto set my hand and seal this twentieth day of May, in the year of our Lord one thousand eight hundred and fifty-six.

FRANCOIS COIGNET. [L. S.]

Witness:
CH'S HASENFELD,
12 *Place de la Bourse, Paris.*

134 Copy of the specification and drawing of United States letters patent to Horace P. Russ, No. 5475, dated March 14, 1848; marked "Defendant's Exhibit Russ Patent," in words and figures as follows, to wit:

(Here follows diagram marked page 135.)

136 DEFENDANT'S EXHIBIT RUSS PATENT.

Specification forming part of Letters Patent No. 5475, dated March 14, 1848.

To all unto whom these presents may come:

Know ye that I, Horace P. Russ, of the city, county, and State of New York, civil engineer, have invented and made and applied to use certain new and useful improvements in the construction and arrangement of the parts constituting the carriage-ways of streets and roads by which, while the durabilty is maintained, access can be had to sewers, water pipe, or gas pipes or other needful fixtures beneath the surface and the carriage-way be replaced without injury and at little cost, for which improvements I seek letters patent of the United States.

And that the said improvements and the mode of arranging and constructing the same and the effects obtained thereby are fully and substantially set forth and shewn in the following description and in the drawings annexed to and making part of this specification, wherein—

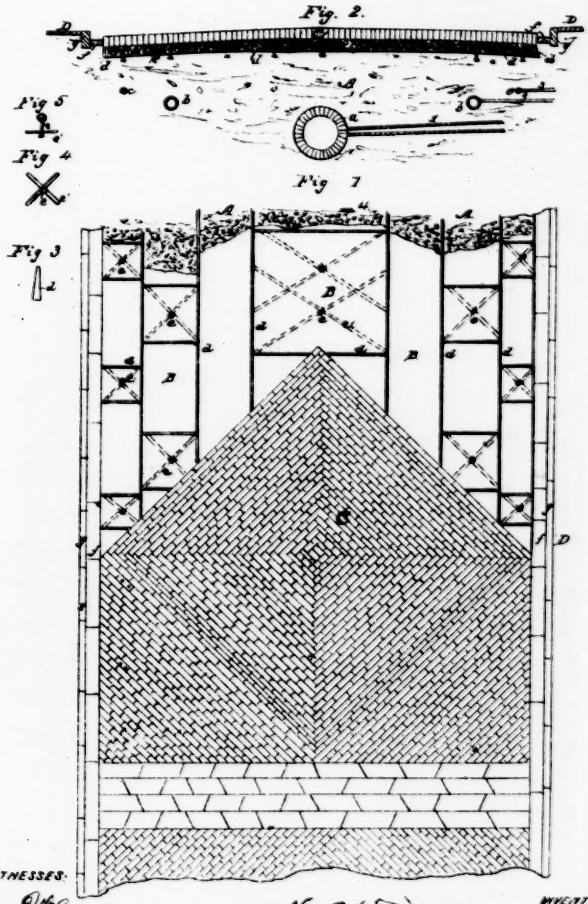
Fig. 1 is a plan of a street, road, or highway formed with my improvements and shewing the progressive arrangements that commence with clearing the subsoil to receive the structure and terminate with the finish of the roadway. Fig. 2 is a section of the same across the street or road. The detached Figs. are separately referred to, and the same letters, numbers, and other marks of reference apply to the like parts in all the Figs.

A is the subsoil, cleared to a proper depth and grade to finish the

H. P. Russ. 135

Stone Pavement.

No. 5,475. Patented Mar. 14, 1848.



WITNESSES:

Edw. W. Serrell

No. 215

Kurlbut

v.

Schillingerstal

No. 135.

INVENTOR:

Horace P. Russ

work as required. In this *a* is a sewer and 1 is a side drain to a culvert or dwelling; *b* are water mains and 2 is a supply
137 branch from one; *c* are gas pipes and 3 a supply branch. These are all to be made and placed, before or after the construction of the road above, in the usual way, and are only represented herein to identify them with the means of access to them, as shown hereafter.

When the subsoil is graded and ready a quantity of granite or other mason's or quarry chips, each from four to six or eight inches in diameter and about half that thickness, are to be laid with the flat test side upwards, in the manner shewn by 4 4, in Fig. 1, and rammed down flush with the grading, so as to form an open heading or partial pavement foundation for the next part of the work. This is to be proceeded in as follows:

The positions of the sewer pipes and branches are to be defined and metal or wood frames laid out in the manner shewn by *d d*. These are thicker at the bottoms than at the tops. The frames successively laid are to circumscribe a space or spaces forming a panel or panels over each sewer pipe and branch beneath, and may be made of sound wood, though common cast iron or iron stone pottery, burnt earth, or any other fit material may be used for the frame pieces in the sectional form shewn in larger size in the detached Fig. 3 and placed on the graded subsoil and partial pavement; then a proper set of open wooden shallow vats are to be prepared for mixing in them what is now well known by the technical name of "concrete," namely, a mixture of mason's chips, broken stone, hydraulic cement, clean sand (not salt beach sand), and fresh water, in such proportions as the quality of the cement will require to form a sound foundation, B, above the subsoil A, that will in a short time become an artificial flag or slab of rock about eight to ten inches thick to bear the pavement above; but before the mixture is placed into the panels or
138 sections formed by the frames *d d* those panels that may hereafter have to be lifted out for access to the parts beneath are to have bars of iron laid into them, forming crosses *e* 1, with holes in them, through which they are united by an eyebolt, *e*, with a ring in the head of each bolt, as shewn in Figs. 4 and 5, and in the larger panels two or more of these sets of bars, bolts, and rings may be used, while in the smaller panels one will be sufficient. The bolts employed for these purposes may be of a small extra length that will find place in the subsoil, and a counter-sink in the face of the concrete is to receive the ring in this way. On applying power to raise the panel the ring will lift clear of the face without breakage or injury to the concrete. The concrete is then to be filled in and consolidated, after which it may be lifted out of any panel or section as may be required by shears or derricks placed above, with tackles hooked into the rings *e e* in the panel, the inverted wedge-formed portions of the frames *d d* allowing each panel of cement to be freely lifted out and placed on one side while access is needed to the parts beneath and receiving the panel of cement in replacement again when the access beneath is no longer needed.

The gutter stones *f*, hub stones *g*, and flagging of the sidewalks D

may all be laid of paneled and divided sections of concrete in the same manner and with the same advantages and effects, but in the drawing the roadway only is shown thus prepared and fitted.

When the concrete foundation is fully consolidated a pavement of granite or sienite stone blocks, C, averaging about ten or twelve inches long, four to five inches wide, and nearly a equal depth of about ten inches, are to be carefully laid to an even surface, com-
139 mencing so as to form the ranges of stones into lozenge-formed divisions, as shown in Fig. 1, by which the edges are presented diagonally to the wheel tires of carriages or to any other passing weight. The stone over the centre of each section or panel is to have two countersunk holes to receive an inverted lewis by which it may be lifted out so as to furnish the commencement of a removal to obtain access to the panel beneath, and this stone should be only set in clear sand, and all the rest of the stones are to be covered with sand, that must be well washed into the interstices between the stones and then consolidated by a portion of loose grouting—that is, hydraulic cement—in a sufficient quantity of water to run freely into the sand and harden between the stones.

The formation of the pavement in diagonal lines with the street is to be commenced and followed up by placing the first stone of each range so that the side shall form an abutment and tie for the head or fore end of the first stone in the next range, and the dimensions of the panels or sections and paving stones may be varied as required.

I do not claim to have invented or discovered any of the materials or parts described as used herein, all being well known, but I do claim as new and of my own invention—

The constructing a concrete foundation, B, in panels or sections (to give access to pipes and conduits below) by the application and combination therewith of frames *d d*, formed of any suitable material, with a thinner edge upwards, to allow the concrete mass to be lifted out when needed, substantially as described, when this is combined with a paved roadway of any kind laid thereon, as described.

In witness whereof I have hereunto set my hand, in the city of New York, this twenty-sixth day of December, one thousand eight hundred and forty-six.

HORACE P. RUSS.

Witnesses:
WM. SERRELL.
EDW. W. SERRELL.

Ex'd: E. A. M., E. McK.

140 Copy of the specification and drawing of United States letters patent to A. Van Camp, assignor, &c., No. 93142, dated July 27, 1869, for improved concrete pavement, marked "Defendant's Exhibit Van Camp Patent," in words and figures as follows, to wit:

(Here follows diagram marked page 141.)

A Van Camp
Concrete Pavement

141

No. 93,142 Patented Jul. 27, 1869

No. 215. Hurlbut v. Schillinger et al. } p. 141

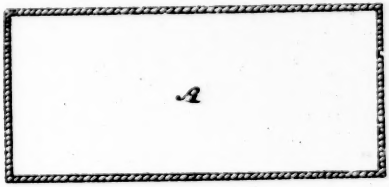


Fig. 1.

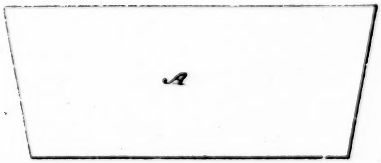


Fig. 2.

Witnesses:
Edwin James
John S. Hollingshead

Inventor:
A. Van Camp
per J. E. F. Holmead
Attorney

142 DEFENDANT'S EXHIBIT VAN CAMP PATENT.

UNITED STATES PATENT OFFICE.

A. VAN CAMP, of Washington, District of Columbia, assignor to himself and M. M. Hodgeman, of St. Louis, Missouri.

Improved Concrete Pavement.

Specification forming part of Letters Patent No. 93142, dated July 27, 1869.

To all whom it may concern:

Be it known that I, A. Van Camp, of Washington city, in the county of Washington and District of Columbia, have invented certain new and useful improvements in concrete pavements; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, making part of this specification, in which—

Figure 1 is a top view of the metallic mold or cap sometimes used.

Fig. 2. is a side view of the same.

I am aware that many experiments have been essayed having in view the producing of a durable concrete pavement—one that would be enabled alike to resist the action of the frost and rain and
143 the heat of the sun without cracking or otherwise being injured. Still, notwithstanding the numerous attempts that have been made, scarcely in a single instance has a pavement of this nature been introduced that in any degree meets with popular favor. Many reasons might be assigned for the failure of all this class of pavements, the chief of which is that when the pavement has been used for awhile it is found that a permanent concretion of the mass has not taken place, which difficulty principally arises from the fact that the gravel, bowlders, or pebbles used, and which invariably constitute a prominent feature in all pavements of this character, soon work loose, owing to the fact that their smooth and even surfaces afford no resisting bearing for the cement or other material to embed itself in. In my improvement this difficulty is entirely remedied, and simply by crushing or pulverizing the rock, gravel, pebbles, or bowlders used before mixing the same with any other ingredient. The result is that instead of a smooth I have a rough and uneven surface, which, after having been once embedded in the asphaltum or the residuum or pitch of coal-tar, which is the other ingredient I use, it is impossible for any of the particles to work loose or become disintegrated. Indeed, numerous experiments have fully attested the fact that in attempting to break a block or section of this pavement the pieces of crushed gravel or stone are always broken in two and never in the slightest degree loosened in their sockets or bearings.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

I take any rock, bowlder, gravel, or pebble suited to the purpose and crush or pulverize the same by any suitable and con-
144 venient means until they are reduced to, comparatively speaking, small particles. This crushing or pulverizing process should be continued until the even or naturally smooth surface of the stone is entirely destroyed. The rock or gravel thus prepared I mix with asphaltum, or what is known as the residuum or pitch of coal-tar, using the ingredients in the following proportions: Stone, gravel, &c., seven parts; asphaltum, &c., one part. This formula I have found by practical experience to be admirably adapted for the purpose intended, but, of course, the same may be slightly varied without in any manner altering my invention.

These ingredients are placed in a large open pan or vessel and subjected to a heat of from 120° to 130°, care being taken that the mass is stirred or agitated during the entire time that it is subjected to the fire. So soon as the ingredients are thoroughly mixed the composition is emptied into a suitable cart or wagon and conveyed to the point or place where the same is to be used. It is then dumped out and spread and properly laid by the aid of hot rollers. For ordinary pavements the depth may be about two (2) inches, for prominent and much-traveled thoroughfares about four (4) inches. Sometimes, especially when the composition is intended to be used for roofing purposes, sharp sand may be advantageously added.

Along railroad tracks and in the immediate vicinity of points where the frequent removal for the purpose of repair, &c., of the pavement is required I propose to lay blocks prepared from the same composition. These blocks are prepared as follows: I place a number of open metallic molds, A, of the form shown in the drawing, along a hard, smooth surface. These molds I partially fill with the composition while the same is in a hot, plastic state, and then
145 thoroughly ram with hot tamps or other suitable implement; then add more of the composition and repeat the ramming process. This is continued until the molds are filled, when the heated rollers are used. The blocks are then allowed to cool, when, if the molds have been properly sanded before, they can be readily removed.

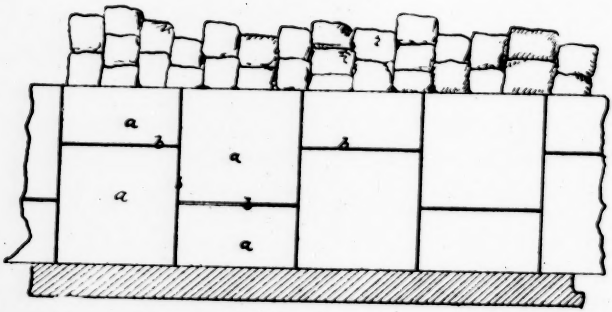
It will be seen by reference to Fig. 2 in the drawing that the mold A is formed with tapering ends or sides. The blocks, of course, are of the same form and outline. Therefore when they are placed side by side their upper surfaces will be close together, but between each two blocks are angular recesses. Now, when these blocks are laid in sand, the sand gradually works up and fills this entire recess, and, the blocks uniting on the well-known principle of the arch, a strong and durable pavement is formed. If desired the blocks need not be removed from the molds, but the pavement laid with the blocks firmly cemented in the molds. When this plan is resorted to of course the molds should not be sanded before the composition is poured in, as it is desirable that the same should adhere in the most permanent manner to the sides of the mold.

J. J. Schillinger. 148

Pavement.

No. 105599. Patented. July 12 1870.

Fig: 1.



No. 215
Hurlbut
v.
Schillinger
et al.
p. 148.

Fig: 2.

Witnesses:
C. Wahlers
Rud Lauzmeister

Inventor.
John J. Schillinger.
pr
Ne, Seebrook & Hoff
Atty.

Having thus fully described my invention, what I claim therein as new, and desire to secure by letters patent of the United States, is—

1. Crushed or pulverized rock, gravel, &c., when the same is used as an ingredient in the formation of concrete pavements, substantially as described.

2. A concrete pavement when the same is composed of the materials stated, substantially as described, as and for the purpose specified.

3. Forming the blocks in the metallic molds A when the same are of the form stated and are laid with or without the molds in sand, substantially as described, as and for the purpose specified.

4. Laying the concrete pavement when the same is composed of crushed rock or gravel and asphaltum by means of hot rollers, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

A. VAN CAMP.

Witnesses:

EDWIN JAMES.
JOHN S. HOLLINGSHEAD.

146 Certified copy of United States letters patent to John J. Schillinger, No. 105,599, dated July 19, 1870, for concrete pavements, marked "Defendant's Exhibit Schillinger Original Patent," in words and figures as follows, to wit:

147 (2–175.)

DEFENDANT'S EXHIBIT SCHILLINGER ORIGINAL PATENT.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted John J. Schillinger July 19, 1870, No. 105,599, for improvement in concrete pavements.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 31st day of October, in the year of our Lord one thousand eight hundred and eighty-two, and of the Independence of the United States the one hundred and seventh.

[SEAL.]

E. M. MARBLE,
Commissioner.

(Here follows diagram marked p. 148.)

148½ No. 105,599.

The United States of America to all to whom these letters patent shall come:

Whereas John J. Schillinger, of New York, New York, has alleged that he has invented a new and useful improvement in concrete pavements, and has made oath that he is a citizen of the United States; that he verily believes he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are therefore to grant to the said John J. Schillinger, his executors, administrators, or assigns, for the term of seventeen years from the nineteenth day of July, one thousand eight hundred and seventy, the full and exclusive right and liberty of making, using, and vending to others to be used, the said improvement, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereto affixed.

Given under my hand, at the city of Washington, this nineteenth day of July, in the year of our Lord one thousand eight hundred and seventy, and of the Independence of the United States of America the ninety-fifth.

[SEAL.]

W. T. OTTO,
Acting Secretary of the Interior.

149 Countersigned and sealed with the seal of the Patent Office.

SAM'L S. FISHER,
Commissioner of Patents.

(8,713—5,000.)

105,599.

UNITED STATES PATENT OFFICE.

JOHN J. SCHILLINGER, of New York, N. Y.

Improvement in Concrete Pavements.

Specification forming part of Letters Patent No. 105,599, dated July 19, 1870.

To all whom it may concern:

Be it known that I, John J. Schillinger, of the city, county, and State of New York, have invented a new and useful improvement in concrete pavements; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to

the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents my pavement in plan view.

Fig. 2 is a vertical section of the pavement.

This invention relates to pavements for sidewalks and other purposes, and consists in combining, with the joints of concrete pavements, strips of tar paper or equivalent material arranged between the several blocks in such a manner as to produce a suitable tight joint and yet allow the blocks to be raised separately without affecting or injuring the blocks adjacent thereto.

In carrying out my invention I form the concrete by mixing
150 cement with sand and gravel or other suitable materials to form a suitable plastic composition, using about the following proportions: One part, by measure, of cement; one part, by measure, of sand, and from three to six parts, by measure, of gravel, using sufficient water to make the mixture plastic; but I do not confine myself to any proportions for making the concrete composition. While the mass is plastic I lay or spread the same upon the foundation or bed of the pavement, either in molds or between movable joints of the proper thickness, so as to form the edges of the concrete blocks *a a*, &c. When the block *a* has been formed I take strips of tar paper *b*, of a width equal or almost equal to the height of the block, and place them up against the edges of the block in such a manner that they form the joints between such block and the adjacent blocks. After completing one block, *a*, I place the tar paper *b* along the edge where the next block is to be formed, and I put the plastic composition for such next block up against the tar paper joint and proceed with the formation of the new block until it is completed. In this manner I proceed in making all the blocks until the pavement is completed, interposing tar paper between their several joints as described. The paper constitutes a tight water-proof joint, but it allows the several blocks to heave separately from the effects of frost, or to be raised or removed separately, whenever occasion may arise, without injury to the adjacent blocks. The paper does not adhere when placed against the edge of the fully formed block, and therefore the joints are always free between the several blocks, although adherence may take place between the paper and the plastic edges of the blocks, which are formed after the paper joints are set up in place.

What I claim as new and desire to secure by letters patent is—

The arrangement of tar paper or its equivalent between adjoining blocks of concrete, substantially as and for the purpose described.

This specification signed by me this 15th day of June, 1870.

JOHN J. SCHILLINGER.

Witnesses:

W. HAUFF.

C. WAHLERS.

151 Certified copy of United States letters patent to John J. Schillinger, reissue No. 4364, dated May 2, 1871, for improvement in concrete pavement, together with the disclaimer filed March

1st, 1875, marked "Defendant's Exhibit Schillinger Reissue Patent," in words and figures as follows, to wit:

152 (2–175.)

DEFENDANT'S EXHIBIT SCHILLINGER REISSUE PATENT.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the reissue letters patent granted John J. Schillinger May 2, 1871, No. 4364, for "improvement in concrete pavements," together with the disclaimer filed March 1st, 1875, in the matter of the above reissue letters patent.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 31st day of October, in the year of our Lord one thousand eight hundred and eighty-two, and of the Independence of the United States the one hundred and seventh.

[SEAL.] E. M. MARBLE,
Commissioner.

(Here follows diagram marked p. 153.)

154 Reissue No. 4364.

The United States of America to all to whom these letters patent shall come:

Whereas John J. Schillinger, of New York, New York, has alleged that he has invented a new and useful improvement in concrete pavements (for which letters patent were issued to him, dated July 19, 1870, which letters having been surrendered, the same have been canceled, and new letters ordered to issue to him on an amended specification), and has made oath that he is a citizen of the United States; that he verily believes he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are therefore to grant to the said John J. Schillinger, his executors, administrators, or assigns, for the term of seventeen years from the nineteenth day of July, one thousand eight hundred and seventy, the full and exclusive right and liberty of making, using, and vending to others to be used, the said improvement, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

JOHN J. SCHILLINGER. 153

Improvement in Concrete-Pavements.

No. 4,364. Reissued May 2. 1871.

Fig. 1.

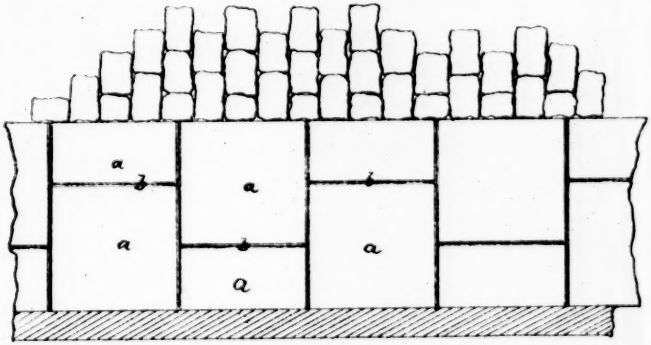
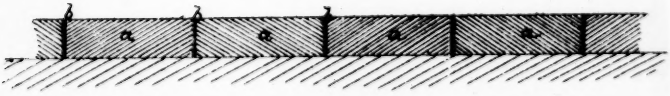


Fig. 2.



No. 215.
Sturlbut
v.
Schillinger
et al.
} p. 153.

Witnesses:

E. F. Kastenhuber

C. Wahlers.

Inventor:

John J. Schillinger

Given under my hand, at the city of Washington, this second day of May, in the year of our Lord one thousand eight hundred and seventy-one, and of the Independence of the United States of America the ninety-fifth.

[SEAL.]

C. DELANO,
Secretary of the Interior.

155 Countersigned and sealed with the seal of the Patent Office.

M. D. LEGGETT,
Commissioner of Patents.

UNITED STATES PATENT OFFICE.

JOHN J. SCHILLINGER, of New York, N. Y.

Improvement in Concrete Pavements.

Specification forming part of Letters Patent No. 105,599, dated July 19, 1870; reissue No. 4364, dated May 2, 1871.

To all whom it may concern:

Be it known that I, John J. Schillinger, of the city, county, and State of New York, have invented a new and useful improvement in concrete pavements; and I do hereby declare the following to be a full, clear, and exact description hereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a plan of my pavement. Fig. 2 is a vertical section of the same.

Similar letters indicate corresponding parts.

This invention relates to a concrete pavement which is laid in sections, so that each section can be taken up and relaid without disturbing the adjoining sections. With the joints of this sectional concrete pavement are combined strips of tar paper or equivalent material arranged between the several blocks or sections in such a manner as to produce a suitable tight joint and yet allow the blocks to be raised separately without affecting the blocks adjacent thereto.

156 In carrying out my invention I form the concrete by mixing cement with sand and gravel or other suitable material to form a plastic compound, using about the following proportions: One part, by measure, of cement; one part, by measure, of sand, and from three to six parts, by measure, of gravel, with sufficient water to render the mixture plastic; but I do not confine myself to any definite proportions or materials for making the concrete composition. While the mass is plastic I lay or spread the same on the foundation or bed of the pavement, either in molds or between movable joists of the proper thickness, so as to form the edges of the concrete blocks *a a*, one block being formed after the other. When the

first block has set I remove the joists or partitions between it and the block next to be formed, and then I form the second block, and so on, each succeeding block being formed after the adjacent blocks have set, and since the concrete in setting shrinks, the second block, when set, does not adhere to the first, and so on, and when the pavement is completed each block can be taken up independent of the adjoining blocks. Between the joints of the adjacent blocks are placed strips, *b*, of tar paper or other suitable material, in the following manner: After completing one block, *a*, I place the tar paper *b* along the edge where the next block is to be formed, and I put the plastic composition for such next block up against the tar-paper joint and proceed with the formation of the new block until it is completed. In this manner I proceed until the pavement is completed, interposing tar paper between the several joints as described. The paper constitutes a tight, water-proof joint, but it allows the several blocks to heave separately from the effects of frost or to be raised or removed separately, whenever occasion may arise, without injury to the adjacent blocks. The paper, when placed against
157 the block first formed, does not adhere thereto, and therefore the joints are always free between the several blocks, although the paper may adhere to the edges of the block or blocks formed after the same has been set up in its place between the joints. In such cases, however, where cheapness is an object the tar paper may be omitted and the blocks formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with sand or dust and the pavement is rendered sufficiently tight for many purposes, while the blocks are detached from each other and can be taken up and relaid each independent of the adjoining blocks.

What I claim as new and desire to secure by letters patent is—

1. A concrete pavement laid in detached blocks or sections, substantially in the manner shown and described.

2. The arrangement of tar paper or its equivalent between adjoining blocks of concrete, substantially as and for the purpose set forth.

JOHN J. SCHILLINGER.

Witnesses:
W. HAUFF.
E. F. KASTENHUBER.

To the Commissioner of Patents:

Your petitioner, John J. Schillinger, of the city and county and State of New York, represents that letters patent of the United States reissue No. 4364, bearing date May 2, 1871, were granted to him for an improvement in concrete pavements.

That he has reason to believe that through inadvertence, accident, or mistake the specification and claim of said letters patent
158 are too broad, including that of which your petitioner was not the first inventor, and he therefore hereby enters his disclaimer to the following words: "And, since the concrete in setting shrinks, the second block, when set, does not adhere to the first, and

so on," and which occur near the middle part of said specification, and to the following words near the end of the specification:

"In such cases, however, where cheapness is an object the tar paper may be omitted and the blocks formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with sand or dust and the pavement is rendered sufficiently tight for many purposes, while the blocks are detached from each other and can be taken up and relaid each independent of the adjoining blocks."

Your petitioner hereby disclaims the forming of blocks from plastic material without interposing anything between their joints while in the process of formation.

Your petitioner owns the said patent and the whole interest therein except in the following places or territory, for which he was granted exclusive licenses under royalty or sold rights under said patent, to wit, the counties of Kings, Queens, and Richmond, New York State; Hartford county, Connecticut; the District of Columbia, the States of New Jersey, Georgia, Maryland, Louisiana, Texas, Ohio, Michigan, Missouri, and Illinois, which above-named States and places comprise all the territory for which he has sold or granted exclusive licenses or rights in or under said patent to the best of his recollection, knowledge, and belief.

New York, February 27, 1875.

JOHN J. SCHILLINGER.

Witnesses:
GEORGE FULLER.
S. MENDELSOHN.

Ex'd: E. A. M., H. M. H.

159 Certified copy of United States letters patent to John J. Schillinger, No. 111,879, dated February 14, 1871, for concrete pavements, marked "Defendant's Exhibit Schillinger 1871 Patent," in words and figures as follows, to wit:

160 DEFENDANT'S EXHIBIT SCHILLINGER 1871 PATENT.

(2–175.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted John J. Schillinger February 14, 1871, No. 111,879, for improvement in concrete pavements.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 31st day of October, in the year of our Lord one thousand eight hundred and eighty-two, and of the Independence of the United States the one hundred and seventh.

[SEAL.]

E. M. MARBLE,
Commissioner.

No. 111,879.

The United States of America to all to whom these letters patent shall come:

Whereas John J. Schillinger, of New York, New York, has alleged that he has invented a new and useful improvement in concrete pavements, and has made oath that he is a citizen of the United States; that he verily believes he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-
162 five dollars and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant to the said John J. Schillinger, his executors, administrators, or assigns, for the term of seventeen years from the fourteenth day of February, one thousand eight hundred and seventy-one, the full and exclusive right and liberty of making, using, and vending to others to be used, the said improvement, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this fourteenth day of February, in the year of our Lord one thousand eight hundred and seventy-one, and of the Independence of the United States of America the ninety-fifth.

[SEAL.]

W. T. OTTO,
Acting Secretary of the Interior.

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

SAM'L A. DUNCAN,
Acting Commissioner of Patents.

(Here follows diagram marked p. 161.)

UNITED STATES PATENT OFFICE.

JOHN J. SCHILLINGER, of New York, N. Y.

Improvement in Concrete Pavements.

Specification forming part of Letters Patent No. 111,879, dated February 14, 1871.

163 To all whom it may concern:

Be it known that I, John J. Schillinger, of the city, county, and State of New York, have invented a new and improved concrete pavement; and I do hereby delare the following to be a full,

J. J. Schillinger,

161

Concrete Pavement.

No. 111,879. Patented Feb. 14. 1871.

No. 215. Hurlbut v. Schillinger et al } p. 161

Fig. 1.

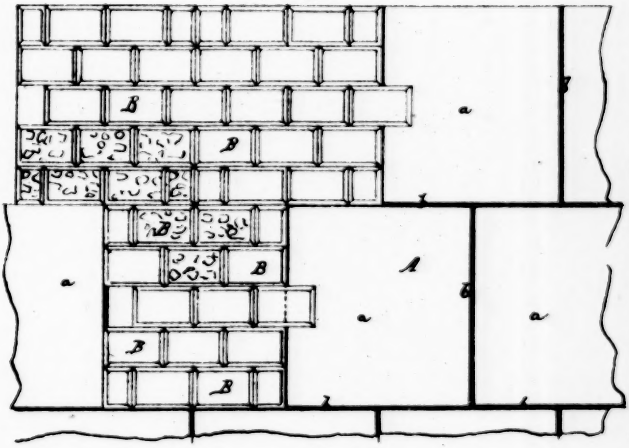


Fig. 2.

Witnesses.
E. F. Kastenhuber
C. Wahlers

Inventor.
John J. Schillinger
pr.
Van Santvoord & Hauff
Attys

clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a plan or top view of this invention. Fig. 2 is a vertical section of the same.

Similar letters indicate corresponding parts.

This invention relates to a pavement which consist of a concrete sub-bed and concrete blocks. The sub-bed is made in sections separated from each other by strips of paper interposed between the adjoining edges, and the pavement blocks are molded of cement by placing broken stones in the mold and pouring the cement over them, so that when the block is turned out of the mold its upper surface is formed by the broken stones intermixed with cement. These pavement blocks are united with the sub-bed either by placing them thereon before the sub-bed has set or by putting a fresh layer of cement on the sub-bed and setting the blocks thereon. The crevices existing between the blocks are filled up with cement, and by these means a pavement is produced which presents a good foothold for draft animals which is firm and durable, and which, being laid in sections, can readily be taken up and relaid, as circumstances may demand.

In the drawing the letter A designates the sub-bed of my pavement, which is made of cement and laid in sections *a*, which
164 are separated from each other by strips *b* of paper or other suitable material, so that each section is free to move up or down independent of the adjoining sections, and the bed is prevented from cracking by the changes of the temperature; and, furthermore, each section can be easily taken up without disturbing the adjoining sections. On this sub-bed are placed the pavement blocks B, which are made of cement, with pieces *c* of broken stones embedded in their upper surfaces, so that when the blocks are laid down their surfaces will soon become rough, the cement filling the interstices between the broken stones being worked out by the feet of draft animals passing over them, and a pavement is obtained which offers a good foothold to draft animals and which at the same time is smooth and level. Said blocks may be made in the form of truncated pyramids, as shown in Fig. 2, and after they have been put down the interstices between them are filled up with cement; or said blocks may be made in the form of parallelopipeds and laid close together, so that no cement is required to fill up the interspaces.

The blocks B are formed in suitable molds and allowed to harden before they are used, and they are united with the sub-bed by putting them down thereon before the cement forming the sub-bed has set, or if desired the sub-bed may be allowed to harden and a fresh layer of cement spread thereon to receive the blocks and form the connection between them and the sub-bed.

In laying down the blocks care is to be taken to put them down so as to break joints, and if desired one or more blocks may be made to extend across each of the joints between two adjoining sections, so as to bind these sections together. In taking up the pavement

or a portion thereof these binding blocks have to be removed,
165 and then each section can be readily raised and afterward relaid without difficulty.

I do not wish to claim in this present application for a patent the construction of a cement bed in sections with paper or other suitable material interposed between the joints, this construction being fully described in letters patent granted to me July 19, 1870; but

What I claim as new and desire to secure by letters patent is—

A pavement composed of a concrete sub-bed laid in sections, separated from each other by strips of paper or other suitable material interposed between them, and of pavement blocks formed of cement, with pieces of broken stones embedded in their surfaces and united to the sub-bed by means of cement, substantially in the manner shown and described.

JOHN J. SCHILLINGER.

Witnesses:
W. HAUFF.
E. F. KASTENHUBER.

166 Certified copy of United States letters patent granted to J. Burrell Hurlbut, assignor, &c., No. 162,172, dated April 20th, 1875, for apparatus for laying cement pavements in blocks, marked "Defendant's Exhibit Hurlbut Patent," in words and figures as follows, to wit:

167 DEFENDANT'S EXHIBIT HURLBUT PATENT.

(2–175.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Hurlbut and Dickinson April 20, 1875, No. 162,172, for improvement in apparatus for laying cement pavements in blocks.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 31st day of October, in the year of our Lord one thousand eight hundred and eighty-two, and of the Independence of the United States the one hundred and seventh.

[SEAL.] E. M. MARBLE,
Commissioner.

(2–155.)

No. 162,172.

The United States of America to all to whom these presents shall come:

Whereas J. Burrell Hurlbut, of Chicago, Illinois, has presented to the Commissioner of Patents a petition praying for the grant of let-

169

2 Sheets - Sheet 1.

J. B. HURLBUT.

Apparatus for Laying Cement Pavement in Blocks.

No. 162,172. Patented April 20, 1875.

No. 215 Hurlbut & Schillinger et al } p. 169

Fig. 1.

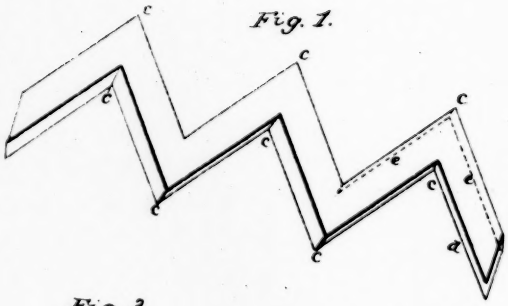


Fig. 3.

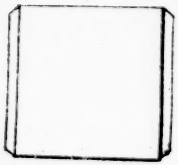


Fig. 2.

Fig. 4.

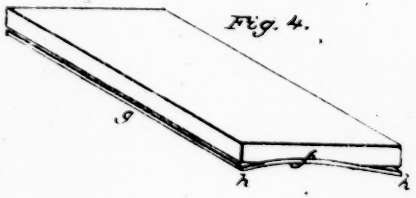


Fig. 5.

Witnesses.

D. N. Hurlbut

A. D. Sawtelle

Inventor.

J. Burrell Hurlbut

2 Sheets - Sheet 2.

J. B HURLBUT.

Apparatus for Laying Cement Pavement in Blocks.

No. 162,172 Patented April 20, 1875.

No. 215.
Hurlbut
v.
Schillinger et al.
p. 168

Fig. 6.

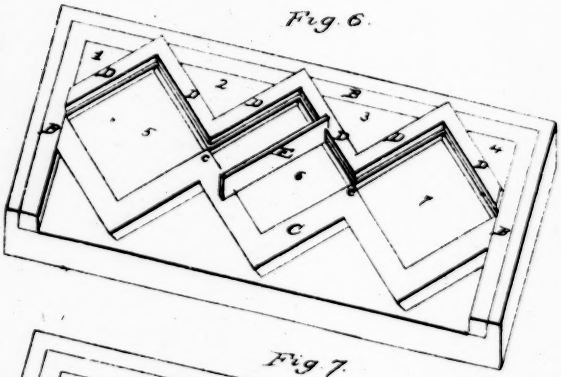
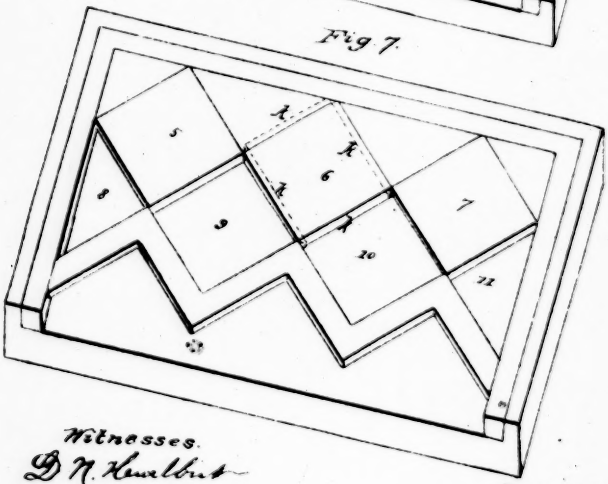


Fig 7.



Witnesses.
D. N. Hurlbut
A. D. Bartelle

Inventor.
J. Burrell Hurlbut

ters patent for an alleged new and useful improvement in apparatus for laying cement pavements in blocks (he having assigned one-half of his right, title, and interest in said improvement to William P. Dickinson, of same place), a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas, upon due examination made, the said claimant is adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said Hurlbut and Dickinson, their heirs or assigns, for the term of seventeen years from the twentieth day of April, one thousand eight hundred and seventy-five, the exclusive right to make, use, and vend the said invention throughout the United States and the territories thereof.

169½ In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this twentieth day of April, in the year of our Lord one thousand eight hundred and seventy-five, and of the Independence of the United States of America the ninety-ninth.

[SEAL.] B. R. COWEN,
Acting Secretary of the Interior.

Countersigned:
J. M. THACHER,
Commissioner of Patents.

(Here follow diagrams marked pp. 168 & 169.)

UNITED STATES PATENT OFFICE.

J. BURRELL HURLBUT, of Chicago, Illinois, assignor of one-half his right to William P. Dickinson, of same place.

Improvement in Apparatus for Laying Cement Pavement in Blocks.

Specification forming part of Letters Patent No. 162,172, dated April 20, 1875; application filed November 21, 1874.

To all whom it may concern:

Be it known that I, J. Burrell Hurlbut, of Chicago, Illinois, have invented certain improvements in cement pavement and the apparatus for making the same, of which the following is a specification:

My invention relates to a novel method of forming blocks of artificial stone or cement pavement, whereby they are prevented from becoming uneven by sinking below or rising above a common plane upon their upper surface by the action of frost or other cause, and consists in beveling the edges of the blocks, so that they will measure more across their upper side than across their under side in one direction and less across their upper side than across their

under side in the other or opposite direction, and also in the novel construction of a forming frame, whereby the blocks are beveled, as desired, by using the different sides of the frame alternately, and also in the novel construction of a parting strip, whereby the colors are kept separate, showing a straight line between the blocks and while forming their edges in actual contact, the same strip being of great service to rest a straight edge upon while leveling the block in process of formation, all of which is hereinafter more fully described.

In the accompanying drawings figure 1 represents my forming frame, made of wood or other suitable material, consisting of a series of pieces with parallel edges, connected together at their ends, forming the desired angles *c*, with two faces converging together, alike upon both sides, the whole forming a solid frame, with both edges of all its pieces beveled in the same direction, as seen at *d* and dotted lines *e*. Fig. 2 is a cross-section of the forming frame, Fig. 1, and more fully shows the bevel of its edges.

The forming frame, Fig. 1, is made with the edges of its pieces parallel and beveled alike and in the same direction, so that it may be reversed to form the desired bevel upon the edges of the different series or blocks by turning the edge first used outward and using the outer edge in forming the second series of blocks, as seen in Figs. 6 and 7.

Fig. 4. is a perspective view of the pieces used to part the colors and form a straight line between the different series of blocks, and also to rest a straight edge upon while sweeping the blocks in process of formation to the desired level, and is made of wood or other suitable material, about four inches in width and three-fourths of an inch in thickness, having a depression cut into its under side at *f* to receive the upper side of the strip *g*, which is the same width as the wood and about one-eighth of an inch in thickness, and is made of India rubber or other suitable material and firmly fastened to the wood, and sets off at the edges, as seen at *h h*, forming a spring, which, combined with its pliability, causes it to fit closely to the stone or block when firmly pressed downward. The India rubber prevents the strip from being moved easily and prevents the mingling of the colors while the stone or blocks are being formed with their edges in actual contact.

Fig. 5 represents a straight edge, made of any suitable material, with a notch cut out of its under edge at one end, corresponding to the thickness of the parting strips, Fig. 4, and is used by resting the notched end upon the strip D and the other end upon the forming frame C, as shown at E, in Fig. 6, and sweeping the stone forming to the same level as the former series.

Fig. 3 shows a detached block with its edges beveled, so that the distance is greater across its upper side than across its under side in one direction and less across its upper side than across its under side in the other or opposite direction, and when placed in the pavement with the edges of the different series in contact the bevel of its edges serves to hold each block upon a common plane.

Fig. 6 represents the process of laying my cement pavement by forming the blocks in place.

The border B and blocks 1, 2, 3, and 4 having been previously laid, the forming frame C is placed with its corners *c* firmly against the corners of the blocks 2 and 3. The pieces D are then placed upon the blocks 1, 2, 3, and 4, with their edges even with the edges of the blocks, and the space between the frame C and blocks 1, 2, 3,
172 and 4 is filled with the desired material and pressed firmly against the frame C and blocks 1, 2, 3, and 4, and the tops of the forming blocks are swept to the desired level with the straight edge E.

Fig. 7 represents the blocks 5, 6, and 7 finished and the forming frame C reversed preparatory to forming the blocks 8, 9, 10, and 11. The frame C may be reversed in this manner for any number of series of blocks.

The dotted lines *k* upon block 6, in Fig. 7, show the block made in place with the bevel upon its edges.

I claim as my invention—

1. The forming frame, when made with beveled edges and reversible, substantially as described.

2. The parting strip having the depression *f* and pliable strip *g*, forming the spring edges *h*, as described.

3. The block or stone, formed substantially as described, with its opposite edges beveled in opposite directions, for the purpose specified.

J. BURRELL HURLBUT.

Witnesses:
D. N. HURLBUT.
A. D. SAWTELLE.

173 Deposition of William S. Bates, in words and figures as follows, to wit:

174 United States Circuit Court, Northern District of Illinois.
In Equity.

JOHN J. SCHILLINGER *et al. vs.* J. B. HURLBUT.

At Chicago, Illinois, on this 8th day of May, A. D. 1883, before H. M. Munday, notary public.

Present: G. W. Hey, Esq., for complainants; L. L. Bond, Esq., for defendant.

At ten o'clock in the forenoon, pursuant to agreement, the parties to the said cause, by their counsel as above, met at the office of Messrs. West & Bond, rooms 51–54, No. 204 Dearborn St., Chicago, Illinois, when the following proceedings were had:

Counsel for defendant offers in evidence copies as follows:

Printed Blue Book of English patent to Auguste Chesneau, No. 350, of the year 1852, for paving, and the same is marked "Defendant's Exhibit Chesneau Patent, H. M. M., N. P."

Also printed Blue Book of the English patent to Charles Jean le

Melorel de la Haichois, No. 771, of the year 1856, for paving, and the same is marked "Defendant's Exhibit Haichois Patent, H. M. M., N. P."

175 Also printed Blue Book of English patent to George Robert D'Harcourt, No. 7991, of the year 1839, for paving, and the same is marked "Defendant's Exhibit D'Harcourt Patent, H. M. M., N. P."

Also printed Blue Book of English patent to Richard Tappin Claridge, No. 7489, of the year 1837, for cement for paving and building purposes, and the same is marked "Defendant's Exhibit Claridge Patent, H. M. M., N. P."

Also printed Blue Book of English patent to Francois Coignet, No. 2659, of the year 1855, for artificial stone and cement, and the same is marked "Defendant's Exhibit Coignet Patent, H. M. M., N. P."

Also copy of the specification and drawing of United States letter patent to Horace P. Russ, No. 5475, dated March 14, 1848, and the same is marked "Defendant's Exhibit Russ Patent, H. M. M., N. P."

Also copy of the specification and drawing of United States letters patent to A. Van Camp, assignor, &c., No. 93142, dated July 27, 1869, for improved concrete pavement, and the same is marked "Defendant's Exhibit Van Camp Patent, H. M. M., N. P."

Also certified copy of United States letters patent to John J. Schillinger, No. 105,599, dated July 19, 1870, for concrete pavements, and the same is marked "Defendant's Exhibit Schillinger Original Patent, H. M. M., N. P."

176 Also certified copy of United States letters patent to John J. Schillinger, reissue No. 4364, dated May 2, 1871, for improvement in concrete pavement, together with the disclaimer filed March 1st, 1875, and the same is marked "Defendant's Exhibit Schillinger Reissue Patent, H. M. M., N. P."

Also certified copy of United States letters patent to John J. Schillinger, No. 111,879, dated February 14, 1871, for concrete pavements, and the same is marked "Defendant's Exhibit Schillinger 1871 Patent, H. M. M., N. P."

Also certified copy of United States letters patent granted to J. Burrell Hurlburt, assignor, &c., No. 162,172, dated April 20th, 1875, for apparatus for laying cement pavements in blocks, and the same is marked "Defendant's Exhibit Hurlburt Patent, H. M. M., N. P."

WILLIAM S. BATES, a witness produced on the part of the defendant, being first duly sworn, deposes and says, in answer to interrogatories to him propounded by L. L. BOND, Esq., as follows:

Int. 1. Please state your name, age, residence, and occupation.

Ans. William S. Bates; age, 31 years; residence, Chicago, Illinois, and occupation, civil and mechanical engineer.

Int. 2. What opportunities have you had for becoming familiar with patents, patented inventions, and mechanics generally?

177 Ans. I have been engaged in mechanical pursuits for a good many years past, and in practicing my profession I am

daily brought in contact with mechanical devices of various kinds, and required to analyze, test, and compare the same. For a number of years I was almost entirely occupied as a solicitor of patents, and I have been frequently called as an expert in patent cases.

Int. 3. Have you examined and do you understand reissue letters patent to John J. Schillinger, No. 4364, dated May 2, 1871, Complainants' Exhibit Schillinger Patent, in this case?

Ans. I have examined and believe I understand the same.

Int. 4. Have you examined and do you understand the several patents, English and United States, exhibited by the defendant in this cause, and marked "Defendant's Exhibits 'Chesneau Patent,' 'Haichois Patent,' 'D'Harcourt Patent,' 'Claridge Patent,' 'Coignet Patent,' 'Russ Patent,' 'Van Camp Patent,' 'Schillinger Original Patent,' and 'Schillinger Reissue Patent,' with disclaimer, respectively?"

Ans. I have examined and believe I understand all of them.

Int. 5. Please state what invention you find shown and described and summed up in the claims of Complainants' Exhibit Schillinger Patent, considering the same in connection with the disclaimer filed March 1st, 1875, and compare the invention which you may find shown and described in the said Complainants' Exhibit Schillinger Patent with the inventions shown and described in the several
178 patent exhibits produced by the defendant and referred to in the preceding question, and state whether or not the invention of the said Schillinger, as summed up in the claims of Complainants' Exhibit Schillinger Patent, is substantially the same as or different from the inventions of Defendant's Patent Exhibits referred to, giving your reasons for any opinion you may express.

Ans. The Schillinger reissue referred to relates to improvements in concrete pavements. As set forth in the preamble, it relates to a concrete pavement which is laid in sections, so that each section can be taken up and relaid without disturbing the adjoining sections. As described in the specification, the Schillinger pavement is laid in the following manner:

The ground on which the pavement is to be laid is first prepared, the concrete is mixed and spread on the foundation between movable joists, which are arranged at the proper distance apart. When the mass is set the first block is complete and the movable joists are removed and placed in position for forming the second block. These joists simply constitute a mold for the concrete. Before the concrete is spread on the foundation for the second block strips of tar paper or other equivalent material is placed along the edge of the first block and then the concrete is placed up against the tar paper and the second block formed. The third and subsequent blocks are formed in the same manner, the tar paper or equivalent material being placed against the edge of the completed blocks before the next adjacent blocks are formed, so that the pavement when completed is composed of independent blocks of concrete, having tar paper or equivalent material in its joints, between the blocks. The object, as I understand it, is "to produce a suitable tight joint
179 and yet allow the blocks to be raised separately without affect-

ing the blocks adjacent thereto." It is this use of tar paper or equivalent material in the joints between the blocks of a concrete pavement which I understand to constitute the invention of Schillinger, as set forth in his reissue patent, when the same is read in the light of the disclaimer.

It is true there is language in the printed specification which might imply that the invention was something more than I have stated, but this language has been expressly removed by the disclaimer; and, in addition thereto, the disclaimer states in terms the "forming of blocks from plastic material without interposing anything between their joints while in the process of formation."

In comparing this invention with the defendant's exhibits, in answer to the second part of the question, I will consider the exhibits separately and in the order named.

The Chesneau patent describes a pavement made of plastic material formed in blocks, which can be taken up separately without disturbing adjacent blocks. This separate taking up is one of the features described by Chesneau, to permit of getting at gas and water pipes. To this end Chesneau forms his pavement as follows: He takes wooden panels and binds them around with iron bands, so as to form a sort of box with iron sides and wooden bottom. A number of these boxes are arranged together and filled with plastic material, and constitute the pavement. This is not exactly the same as the Schillinger pavement, but it is a concrete pavement laid in sections or detached blocks and having sheet iron arranged in the joints between the blocks.

The Haichois patent describes a concrete pavement laid in the following manner:

180 A foundation of concrete is first prepared, then strips of vulcanized rubber or other analogous substance are arranged on the foundation so as to form squares or lozenges. These strips are secured either by iron ties or by beveling the lower edge and pressing it into the foundation bed. The plastic mass of concrete is then spread on the foundation and between the strips so as to be flush with their tops, and this constitutes the pavement. This Haichois pavement is a concrete pavement laid in blocks and having India rubber or analogous materials such as tar paper, for example, between the blocks. This differs from the Schillinger in being made of asphalt concrete instead of cement concrete, which difference I consider entirely immaterial, and also in the use of glue between the India rubber or tar paper, or whatever is used, and the concrete blocks. This is simply an addition to the Schillinger pavement and not a departure from it, and simply ensures the joint being tight. The Haichois patent, therefore, in my opinion, contains the Schillinger invention, as set forth and claimed in his second claim, which is for the arrangement of tar paper or its equivalent between adjoining blocks of concrete; but inasmuch as it does not describe the particular method of laying the pavement and interposing the tar paper described by Schillinger, it does not contain the invention of Schillinger's first claim, which relates to the method of laying the pavement and interposing the tar paper.

The D'Harcourt patent describes a method of forming a pavement of detached blocks as follows:

Molds or frames of zinc or tin are formed in the shape to be given the blocks. A set of these molds being arranged on
181 the foundation, the plaster concrete is poured into them. When the concrete is set the molds are moved into position for the next set of blocks, which are formed in the same manner, and so on. This method is identical in principle with the method described by Schillinger, except that there is no tar paper between the blocks, but the joints are left open, and the D'Harcourt pavement is a concrete pavement laid in sections, which can be taken up and relaid without disturbing the adjoining sections.

The Claridge patent describes a method of forming a concrete pavement by spreading the plastic mass of concrete between flat iron bars to form the first block, and when the first block is set one of the bars is moved along and a fresh lot of concrete is poured between it and the previously formed block, and so on. This is exactly the method described by Schillinger for forming his pavement, except that no tar paper is used between the blocks, and the pavement, when done, is exactly the Schillinger pavement, with the exception of the tar paper.

The Coignet patent describes pavements, walls, and other structures composed of concrete formed of cement or hydraulic lime and sand and gravel. The particular method of applying this concrete is not described, but the patent speaks of molds which are filled, and, when the concrete is set, are disjoined and moved and filled again. This method is evidently somewhat similar, when used in forming pavements, to the method described by Schillinger, and the material used by Coignet is identically the material used by Schillinger, and is the ordinary cement concrete at the present day.

The Russ patent shows and describes a concrete roadway laid in sections for the express purpose of having the separate blocks
182 taken up without disturbing adjacent blocks, so as to get at sewer, gas, or water pipes. The blocks are formed by spreading the concrete on the foundation between wooden strips previously laid down. The strips are left in their position after the road is completed. To take up the wear of traffic a surface of granite or other block paving is placed over the concrete. This is simply to take the wear off the concrete, and has no effect upon the function or purpose of the latter.

This Russ roadway therefore is a concrete pavement laid in detached blocks or sections, so that each section can be taken up and relaid without disturbing the adjoining sections, and in these respects is exactly the pavement described by Schillinger, and the adjoining blocks of concrete in the Russ have strips of wood between them exactly as the Schillinger blocks have tar paper, and, further than this, the concrete used by Russ is the same as the concrete used by Schillinger.

The Van Camp patent describes a pavement made of asphalt concrete which in certain situations is laid in separate blocks or sections which can be taken up for purposes of repair. In some

cases the blocks are laid in molds, the molds remaining as a part of the pavement, in which case the blocks of concrete have a foreign substance in the joints between them.

Int. 6. Please look at the models now shown to you and state what they are intended to represent, and whether or not they are correct representations.

Ans. I have looked at the models. They are apparently intended to represent the pavements described in the English patents to which I have been referred, and they do correctly represent
183 those pavements. I have marked each model with the name of the patent to which it pertains.

Models shown witness offered in evidence and are marked, respectively, Defendant's Exhibits "Chesneau Model," "Claridge Model," "Haichois Model," and "D'Harcourt Model."

Int. 7. Have you examined and observed, personally, the process employed by defendant in laying concrete walks or pavements? And if you say you have, please describe the process and compare the same with the process and invention described and shown in Complainants' Exhibit Schillinger Patent and summed up in the claims thereof, and in making the comparison, if you so desire, you may refer to any of the prior patents exhibited by the defendant, and state whether or not the process employed by the defendant, as you observed it, is substantially the same as or substantially different from the invention shown, described, and claimed in the Complainants' Exhibit Schillinger Patent, giving your reasons for any opinion you may express.

Complainants' counsel objects to the question on the ground that it is immaterial and incompetent.

Ans. I have observed the defendant's method of laying concrete walks. This method was as follows: A foundation was prepared of sand; joists were then placed so as to leave a space between them of the size of the first block. The mass of concrete composed of cement, sand, and gravel was spread on the foundation between the joists and rammed. The upper half inch was formed of cement and sand without gravel, so as to give a smooth
184 surface. When the block thus formed had set hard enough to stand, one of the joists was moved along, and a second block formed between it and the first one, and so on. Each block was formed right up against the previously formed block, with nothing in between them, so that, when finished, a pavement looked like one solid block. The process is identically to that of the Exhibit Claridge Patent. In order to give the pavement the appearance of flagging, while still new, it was marked with a trowel. This marking was done as follows: A straight edge was laid across the pavement, as nearly as possible over the edge of the blocks, and a mark made with a trowel; the straight edge was then removed, and a slight V-shaped depression about an eighth of an inch deep made on the mark. This was done simply to give the pavement the appearance of flagging while it was new, and until the joints began to

open from shrinkage, which they would do in the course of two or three months. I have seen pavements in which the marking was evidently done by pressing a cord into the concrete before it was hard.

Comparing this pavement with the Schillinger reissue, I find it to be entirely different from Schillinger's invention.

Schillinger's invention, as already explained, consists of, first, in a concrete pavement laid by first forming a block in place between the movable joists, then laying or placing tar paper along the edge of the formed block, and then forming a second block in place up against the tar paper, and, second, in the arrangement of tar paper or its equivalent between adjoining blocks of concrete. The defendant's pavement has no tar paper arranged between its blocks and has no equivalent for tar paper, neither has it anything which
185 will form a joint between the blocks. In fact, the defendant's pavement is exactly the pavement which Schillinger disclaims in his disclaimer, it being a concrete pavement formed of "blocks from plastic material without interposing anything between their joints while in the process of formation."

Int. 8. Have you read the depositions taken in complainants' *prima facie* evidence; and, if so, how does the process described by the witnesses in such evidence as used by the defendant in laying flagging compare with the process which you saw defendant use?

Complainants' counsel objects to the question on the ground that it is immaterial and incompetent.

Ans. They are identical except in one respect. The complainants' witnesses state that a cut is made in the pavement to control the cracking. In the pavement which I have seen there is no cut made, but simply a mark, and this mark was simply to give the appearance of flagging when the pavement is new and before the joints have opened by shrinkage. This mark would have no effect in controlling the cracking. This is clear from an inspection of the pavement. In all the pavements which I have seen, notably in one on the northwest corner of Chicago and Dearborn avenues, in this city, the cracking has been independent of the mark, being sometimes a sixteenth, sometimes an eighth or more, and sometimes a half inch from the mark, and in one place where the mark was apparently made at the wrong point there is four inches between the mark and the crack. Unless the mark happens to be immediately over the timber line or natural joint a crack will not coincide with the mark. The crack, of course, follows the timber line or natural joint.

186 By consent of counsel the further taking of testimony is adjourned until Wednesday, May 9th, A. D. 1883, at 9 o'clock in the forenoon.

WEDNESDAY, *May 9th*, 1883—nine o'clock a. m.

Examination resumed pursuant to adjournment.

Present: As before.

Int. 9. Considering the first claim of Complainants' Exhibit Schil-

linger Patent as not limited by the disclaimer to a concrete pavement laid in detached blocks with tar paper or equivalent between the blocks, please compare the invention of the first claim, when not thus limited, with the invention shown and described in the prior patents exhibited by the defendant, and state to what extent, if at all, you find the invention to be substantially the same as or substantially different from that of the prior art, giving your reasons for any opinion you may express.

Ans. Taking this view of Schillinger's first claim, it is clearly identical with several of the pavements shown by the prior art.

The Russ patent shows and describes exactly such a pavement—that is, a concrete pavement laid in detached blocks, with the addition of a foreign substance between the blocks.

The D'Harcourt patent describes such a pavement, formed of asphalt concrete laid in detached blocks or sections.

The Claridge patent describes such a pavement, of asphalt concrete laid in detached blocks or sections, and the whole method of laying the pavement and striking off the top is identical with that of Schillinger.

The Haichois, Chesneau, and Van Camp patents describe
187 pavements of concrete laid in detached blocks or sections, and all of these would be within said first claim if it were constructed as suggested, unless it were limited to the precise method of laying the pavement without the tar paper, and in that case the Claridge pavement would be identical with it.

Int. 10. Have you read and do you understand "Defendant's Exhibit Hurlbut Patent?"

Ans. I have read and believe I understand it.

Int. 11. Have you also read the testimony of complainants' witnesses on the *prima facie* as to the manner and means employed by defendant in laying diamond blocks? And, if you say you have, please compare the same with the manner and means described in "Defendant's Exhibit Hurlbut Patent" and state in what respect you find the two to be substantially the same as or substantially different from each other.

Ans. I have read the testimony of complainants' witnesses. The method described by them is substantially the same as that set forth in the Hurlbut patent, with two exceptions, viz., the parting strip of the patent has no metallic points extending down between the stones, as stated in complainants' testimony, and the testimony is silent as to the bevelling of the concrete blocks as described in the patent, so as to dovetail them all together.

Int. 12. Please compare the process and means employed by defendant in laying diamond blocks as stated by complainants' witnesses and shown and described in "Defendant's Exhibit Hurlbut Patent" with the invention shown, described, and summed up in the claims of "Complainants' Exhibit Schillinger Patent," and state
in what respects the two are the same as or different from
188 each other, giving your reasons for any opinion you may express, and in your answer, if you so desire, you may refer to any of the prior patents exhibited by the defendant.

Ans. The defendant's diamond block pavement is entirely different from anything described and claimed in the Schillinger reissue. The movable frame used in laying the defendant's diamond block pavement has bevelled edges, so that the blocks when formed are securely dovetailed together, and no block can be raised or taken up without destroying it or the adjacent blocks. The blocks when laid are in contact with each other and have nothing interposed between their joints, either in the process of formation or afterwards. The metallic points mentioned by complainants' witnesses as being on the parting strips are too small to have any effect whatever in forming a joint between the blocks.

Comparing this pavement with Schillinger's I find the following points of difference: The defendant's pavement is not a pavement laid in sections which can be taken up and relaid without disturbing the adjoining sections, as the sections are all dovetailed together; therefore it is not the class of pavements to which Schillinger's invention relates. The defendant's pavement has no tar paper or other material interposed in the joints between the blocks, and this tar paper or other equivalent material is the essential and main feature of Schillinger's claims.

Therefore, as the defendant's diamond block pavement is not the class of pavement to which Schillinger's invention relates, and as it lacks the main and essential feature of Schillinger's invention, I say that it is entirely different from anything described and claimed in Schillinger's reissue.

189 Int. 13. Look at the models now shown you and state what they are intended to represent.

Ans. The large model represents a piece of defendant's diamond block pavement and the manner of forming the same, and the smaller model represents a parting strip, such, as I understand, are used by the defendant for parting the colors in lying diamond block pavement.

Models shown witness offered in evidence, and the same are marked, respectively, "Defendant's Exhibit Diamond Block Pavement and Mold" and "Defendant's Exhibit Parting Strip."

Cross-examination by G. W. Hey, Esq.:

Cross-int. 14. Do I understand you to construe the first claim of complainants' reissue patents as for the process of constructing concrete pavements with the interposition of tar paper or its equivalent between the detached blocks or sections?

Ans. Substantially that, strictly speaking, it is for the pavement formed by this process.

Cross-int. 15. And your idea is that such is the proper construction, upon reading complainants' patent in connection with the disclaimer.

A. Yes, sir.

Cross-int. 16. In complainants' patent, having consideration solely to such construction of the first claim, if so restricted, in which of

the prior patents, either English or United States, do you find an analogous process or pavement constructed by an analogous process?

Ans. The Claridge patent describes identically the same process except the tar paper, and in the Russ and other patents a
190 foreign substance is interposed between the blocks to make the joints free. These do not describe precisely the same method of laying the blocks that Schillinger and Claridge do; but, in view of the Claridge patent, there would be no invention in forming the Russ pavement by the Claridge method, and when so formed we have the Schillinger exactly.

Cross-int. 17. Is it your idea that the Claridge patent anticipates the first claim of the Schillinger reissue?

Ans. It did until the disclaimer was filed, but since the filing of the disclaimer limiting the first claim to the use of tar paper it does not.

Cross-int. 18. Does either of the prior patents, taken separately by itself, anticipate the first claim when restricted to the construction which you have placed upon it?

Ans. Not exactly, but when taken together the question of no invention arises. I have already said that I consider there was no invention.

Cross-int. 19. Which of the prior patents anticipates the second claim?

Ans. I should say the Russ did, as it has strips between concrete blocks to make a free joint.

Cross-int. 20. Is the Russ patent, in your opinion, as fair an exemplification of the anticipating patents which anticipate the Schillinger invention, as summed up in the second claim thereof, as any of the prior English patents introduced here by the defense?

Ans. I think it is.

Cross-int. 21. Is the pavement described in the Claridge patent a cement or concrete pavement made in sections between joists or frames consisting of flat bars of iron, without any attempt to
191 divide the pavement into blocks other than the molding of each section within the mold formed by the bars, or how otherwise?

Ans. It is.

Cross-int. 22. Does the Russ pavement consist of a foundation pavement of concrete, which was afterwards to be covered with ordinary stone flagging, the sub-pavement of concrete being divided, in places where it covered a sewer or drain, into blocks by bars of iron forming crosses united by an eyebolt with a ring, so that the blocks are movable without injuring the rest of the pavement, or how otherwise?

Ans. It does not; the Russ pavement consists of a sub or foundation pavement of concrete, divided into blocks over sewer and other pipes and having strips of wood interposed between the blocks to make the joints free, so that the blocks can be raised. The eyebolts and rings are simply to catch hold of, just like the ring in the top of a cistern cover, to raise the same, and the crosses formed of iron bars are entirely under the blocks and simply act as a washer to prevent

the bolt from pulling out; they have nothing to do with the formation of the blocks or the division of the pavement into blocks. This concrete pavement is covered stone block or cobble-stone paving.

Cross-int. 23. Are you now referring to the United States patent of Horace P. Russ, dated March 14, 1848?

Ans. I am; No. 5475.

Cross-int. 24. In defendant's method of laying concrete pavements the lower stratum, as I understand you, is composed of coarse material. About how thick is the upper strata, which you say is composed of Portland cement and sand?

Ans. About a half an inch—from that to an inch.

192 Cross-int. 25. Which possesses the greater adhesive qualities—the upper or lower courses?

Ans. Probably the upper, as it contains more cement.

Cross-int. 26. Is there any adhesion between the lower courses of two adjoining blocks laid by defendant's method in making artificial flagging?

Ans. Very little. They separate at the joint when they shrink, and overcome adhesion, if there is any, both in the lower course and the upper one.

Cross-int. 27. And you think that the cut with the trowel between the two blocks over the timber line in the defendant's method would not control the cracking at the joint?

Ans. I am sure of it.

Cross-int. 28. Would the blocks separate just the same without the cut at the joint, as described by you?

Ans. Exactly.

Cross-int. 29. Leaving the blocks all true and intact?

Ans. Yes—unless there was some cause which made them crack elsewhere also.

Cross-int. 30. Why would they separate? What is the cause of it? I mean where no cutting is done at the joint.

Ans. Because the joint is the weakest point. The blocks are formed separately, and the concrete sets before the next adjacent blocks are formed, and there is no interlocking of particles and nothing to hold them together at that point except the adhesion between the fresh concrete and the stiffened concrete. This adhesion is always very slight and is nothing like the cohesion in the mass itself; consequently the joint always opens when the blocks shrink.

193 Cross-int. 31. It is your idea, then, that concrete in setting shrinks sufficiently to separate the blocks?

Ans. Yes; to a slight extent.

Crsss-int. 32. Did you see the pavement on the northwest corner of Chicago and Dearborn avenues, laid by the defendant or his men?

Ans. I did not.

Cross-int. 32. Where have you seen the defendant construct pavements of the class which you have described?

Ans. On north Clark street, a few feet south of Wrightwood ave-

nue, just north of the city limits. I saw this laid last Saturday, May 5th, A. D. 1883.

Cross-int. 34. Had you seen any pavements constructed by the defendant before the commencement of this suit?

Ans. Not in process of construction.

Cross-int. 35. Were the models of the English pavements constructed under your instructions and directions?

Ans. No, sir.

Cross-int. 36. Did you prepare drawings for the model-maker who made them?

Ans. No, sir; I knew nothing about any of the models and had nothing to do with them, and did not know they were being made. My first knowledge of them was after their completion.

Cross-int. 37. Is the model "defendant's diamond block pavement and model" composed of concrete such as is used for the upper course of the blocks in the defendant's method; in other words, is the concrete mass homogeneous and composed of cement and sand?

Ans. Apparently it is; I believe it is.

194 Complainant's counsel waives certificates to the uncertified copies offered in evidence by defendant.

W. S. BATES.

Subscribed and sworn to before me this 9th day of May, A. D. 1883.

H. M. MUNDAY,
Notary Public.

By consent of counsel the further taking of testimony is adjourned until Thursday, May 10th, 1883, at 10 o'clock in the forenoon.

H. M. MUNDAY,
Notary Public.

THURSDAY, *May 10th*, 1883—ten o'clock a. m.

Met pursuant to adjournment.

Present: As before.

195 UNITED STATES OF AMERICA.

STATE OF ILLINOIS, } ss:
County of Cook, Northern District of Illinois, }

I, H. M. Munday, a notary public in and for the county of Cook, in the State aforesaid, do hereby certify that the foregoing deposition of William S. Bates was taken by and before me, pursuant to agreement, at the time and place therein named; that said deposition was taken on the part of the defendant, to be used upon the hearing of a certain cause now pending in the circuit court of the United States in and for the northern district of Illinois, wherein John J. Schillinger *et al.* are complainants and J. B. Hurlburt is defendant;

that the parties to the said cause were present at the taking of the same—complainants by their counsel, G. W. Hey, Esq., and defendant by his counsel, L. L. Bond, Esq., as therein appears; that before deposing the said William S. Bates was by me duly sworn to testify the truth, the whole truth, and nothing but the truth in the cause aforesaid; that his deposition was reduced to writing by me from his statements, and the same duly subscribed and sworn to by him, as therein appears.

And I do further certify that I am neither attorney nor of counsel for any of the parties in said deposition or caption named, and am in nowise interested in the result of said cause.

In testimony whereof I have hereunto set my hand and affixed my notarial seal this tenth day of May, A. D. 1883.

[SEAL.] H. M. MUNDAY,
Notary Public.

196 Stipulation as to testimony of John Miller, George Witt, John Pietsch, J. B. Hurlburt, Charles Row, Klaus Miller, and Michael Botzler in words and figures as follows, to wit:

197 It is hereby stipulated and agreed between the counsel in this cause and each of them that the testimony of John Miller, George Witt, John Pietsch, J. B. Hurlbut, Charles Row, Klaus Miller, and Michael Botzler, direct, cross, redirect, and recross, heretofore taken on the part of the defendant in the cause of John J. Schillinger *vs.* Phillip Best Brewing Company, lately pending in the circuit court of the United States for the eastern district of Wisconsin, in chancery, together with all exhibits, if any, offered or referred to therein, the same being contained in the original transcript of said depositions herewith filed and certified to by Francis Bloodgood and contained on pages 1 to 141, both inclusive, of manuscript in type-writing, shall be taken, considered, used, and filed in evidence in this cause on the part of the defendant with the same force and effect as if duly retaken herein.

DUELL & HEY,
Sol'rs for Compl'ts.
WEST & BOND,
Sol'rs for Def't.

198 Stipulated testimony, the same being the depositions of John Miller, George Witt, John Pietsch, J. B. Hurlbut, Charles Row, Klaus Miller, and Michael Botzler, in words and figures as follows, to wit:

199 *Stipulated Testimony.*

United States Circuit Court, Eastern District of Wisconsin.

JOHN J. SCHILLINGER

vs.

THE PHILLIP BEST BREWING COMPANY.

For the plaintiff, G. W. Hey, Esq.; Winfield & A. A. L. Smith, of counsel for the defendant.

Nov. 21, 1882.

The defendants call JOHN MILLER, who, being sworn, testified:

A. I reside in the city of Chicago. I have lived here for nearly 11 years. I am 37 years of age.

Q. In whose employ are you now?

A. Portland Cement Paving Company.

Q. How long have you been in the employ of that company?

A. I guess for about eight years.

Q. What is your particular business?

A. I am a mason by trade, but I have done nothing much but cement-work for the last 11 years.

Q. Did you lay any pavements and floors on the property of the Phillip Best Brewing Company in Milwaukee?

A. Yes, sir.

Q. When and whereabouts?

A. In the malt-house, on the corner of Tenth and Chestnut streets, and in front of Best Brewing Co. office. I laid it a little over two years ago this summer, in Milwaukee.

Q. Any other work on their premises?

200 A. Yes, sir; I laid a basement floor in the office building—pretty near, if not all—and a little piece of walk—sidewalk—I laid in Pabst's garden, his residence.

Q. Were you foreman of each of these jobs?

A. Yes, sir.

Q. What was the process of laying the sidewalk?

A. It was laid in diamond shape, different colored, black and white.

Q. In diamond blocks—square blocks—was it?

A. Yes, sir.

Q. How much of it was there—how wide?

A. I believe—I could not tell for sure—13 or 14 feet wide.

Q. About what was the size of the blocks?

A. Each block holds about eight square feet of the four full blocks.

Q. What were the blocks made of?

A. Portland cement, sand, and gravel.

Q. Were the blocks in one row laid at the same time or separately from the blocks in another row?

A. We laid each row by itself, a block all the length of the side-

walk the front of the building at one time; laid one row light color; after this was done laid a row of black color.

Q. Did you begin at the end of the piece of walk or side?

A. We ain't particular about that.

Q. How did you begin in that case?

A. We generally began on the end; worked from one end to another, but there is nothing very particular about that.

201 Q. What is the method, the process, that you employ; how did you lay it in this case?

A. We have got wooden molds, frames, we call them, to give the shape of the square stone.

Q. What shape are those wooden molds?

A. V-shaped molds, we call them.

Q. They are two sides of the square, are they—the mold is two sides of the square?

A. Yes, sir.

Q. You do not have the four sides of the square; only the two sides?

A. Yes, sir.

Q. What do you do with that mold?

A. After the ground is prepared we place the mold down on the ground and fill it. We fill it with gravel and sand and cement first—the first bed—and then the finer coat comes on top of that.

Q. What is the size of the mold?

A. There is different lengths. We have molds that will lay two or three stones, and we have square molds. It depends upon the length of the walk. The cast of the size we used there will lay three squares.

Q. Does it then require three of these V's laid one beside another?

A. The frame consists of three V's, one laid side of the other. The three are in one piece.

Q. But when they are all connected there are three, one beside another?

A. Yes, sir.

Q. How large are these V's—of the same size of the blocks you wish to make?

A. Just the same size, the half block, two sides.

202 Q. How high is this mold?

A. Three inches thick.

Q. It has no bottom or top?

A. It has a top—so far as the top side; what we lay the walk by has to be straight and level.

Q. These hollow V's have no bottom underneath them?

A. No, sir.

Q. And have no cover over them?

A. No, sir.

Q. Each V, then, or mold for the block is composed of two sticks, that is all—two parts about three inches wide, attached at the ends and fastened together?

A. Two strips of one V attached on one end.

Q. The V itself is fastened at the corner or angle?

A. Yes, sir.

Q. You said you then poured in or put in the material of which the block is to be made?

A. Yes, sir.

Q. And what else?

A. That is all for the first row. After that block is finished entirely we take the frame back.

Q. That is, by filling the V that makes a series of triangles?

A. Only the half square the first time the one side runs against the wall. I am speaking of the first commencement. After that stone is finished, the first row, we take the frame loose and lay the points against the stone which has just been laid. That will get the shape of the angle the next time.

Q. It leaves, then, an open square?

A. Yes, sir.

203 Q. Lying on the ground?

A. Yes, sir.

Q. What do you do then?

A. We lay the frame level—that is, to the right grade—and start and place two strips on the stone—on the two sides of the stone that has just been laid—and fill the frame again.

Q. What do you say; you lay the two strips on the side of the stone that has just been laid? I do not understand.

A. That V frame—the mold is two sides of that stone that is going to be laid, and the stones that have just been laid, two of those stones, give the other side of the square, and before we go to fill those stones we place a wooden strip on top of the other stones, even with the edge of the stone, so that no stuff that we put in that mold will get onto that stone and onto the edge and spoil the edge.

Q. How would it spoil the edge?

A. By the color. There is a light and dark color; it will be a reverse color to the first row, and this color might run over onto the other stone.

Q. That is upon the theory that you are using different colors?

A. Certainly.

Q. It has nothing to do with the pavement, except for the purpose of keeping the colors?

A. Keeping the colors separate.

Q. What sort of a strip is that that you lay on the block previously made to prevent its being colored by the material you are just about to put on?

A. This wooden strip is the length of one side of those
204 squares, of three inches wide, about half an inch thick, or a little more, and a strip of rubber attached onto it, on one edge of that strip, about an inch wide.

Q. How is that strip three inches wide and of the length of one side of the square laid upon the square, edge down or flat side down?

A. Flat side down, on top of the stone.

Q. That is, just even?

A. Even with the edge.

Q. Is the strip of rubber you say runs along the edge of that piece of wood underneath or upon it?

A. Underneath the strip; so it lies close down onto the stone.

Q. Is it to keep the new material from running onto the stone and staining the stone you have just previously finished?

A. Yes, sir.

Q. When you have so prepared that stone to protect it and put your frame in place, what next do you do?

A. We fill that stone and finish it.

Q. You fill this hollow square?

A. Yes, sir.

Q. With what?

A. Gravel, sand, and cement first—the first coat, rough coat—and I put a fine coat on top of that.

Q. Is the fine coat of the same material?

A. There is no gravel in it—sand and cement mixed, half and half, and colored. If it is a dark stone we want to lay it has got to be colored.

Q. About what is the thickness of that fine coat which you lay over?

A. About half an inch.

205 Q. Does that become one solid piece with the coarse coat under it?

A. Yes, sir.

Q. When you so filled this frame or mold with this colored material, as you have described, what, if anything, separates that material from the white block which you had just laid there before?

A. Nothing separates it, only the strip on top keeps the dark color from running over on the stone. There is nothing between the stones to separate them.

Q. Is there anything between the sides or perpendicular edges of the blocks—in the joint between the stones?

A. Yes, sir; a little hook attached to these strips to keep the strips from slipping back while striking off—a little thin hook what presses into the other stone to keep it from slipping back.

Q. How wide is that hook?

A. One inch, about.

Q. What is under that edge of the old block and between that and the new one which is forming besides these two hooks?

A. Nothing.

Q. What are these two hooks made of?

A. Iron or steel, I believe.

Q. How much room do they take up on the sides of the block?

A. They will take up—each one is about an inch wide; it will take up about two inches.

Q. How much space is there along the block, then, where there is no metal and no other material between the blocks?

A. There would be two feet and eight inches.

206 Q. How deep do those hooks go between the stones?

A. They go down—we have different hooks—some half an inch; some may be pretty near one inch.

Q. And to what are they fastened?

A. To the wooden strips what lies on top of the stone.

Q. And for what purpose?

A. To keep the strips from slipping back—to hold them in place.

Q. When you say the strips you mean the strips that have the rubber along the edge?

A. Yes, sir.

Q. When you are laying stones that way on a floor that is all of one color do you use these hooks and strips you speak of now?

A. Not on floors.

Q. What else is done in the process of forming this block, if anything?

A. Nothing particular, only I may mention we use a straight edge to strike the block off level.

Q. What part of the block do you strike off level?

A. The top, to give a level surface.

Q. At what time in the process or operation do you do that?

A. When we put on the fine coat, as we call it, before we finish it.

Q. After the top coat is put on?

A. While we are putting it on, at the same time we strike it with the straight edge.

Q. What is the straight edge?

A. A stick of wood two to three inches wide, a half an inch to one inch thick, and probably two to five feet long.

207 Q. Designed to be straight, is it?

A. Yes, sir.

Q. It is simply for the purpose of leveling the upper surface of the block, is it?

A. Yes, sir.

Q. What do you do after you have finished the second course of blocks with this piece of wood—straight edge?

A. After the second row is finished far enough we take the strip and level this streak; if the last stone may be put in too high we strike it level with the smoothing trowel.

Q. In laying the second course of blocks does the material come up directly against the edge of the first course which has been previously laid?

A. Yes, sir.

Q. Touch it?

A. Yes, sir; right up as close as we can get it.

Q. Is there any substance placed between the first course and the second course in laying the blocks or at any other time?

A. No, sir.

Q. How long have you laid blocks in this way?

A. For about eight years; so long as I have been with the Portland Cement Paving Company.

Q. Where does that company do business?

A. All over the United States, so far as I know.

Q. Do you know where it is located?

A. In the city of Chicago.

Q. Were these blocks laid in the sidewalk in front of Phillip Best's

Brewing Co. office in Milwaukee laid in this manner and by this process you have described?

A. Yes, sir.

Q. How do you know they were so laid?

208 A I done it myself.

Q. Were you there all the time?

A. Yes, sir.

Q. Do you know how long it took to do that whole job?

A. I could not just tell exactly, but it didn't take—I don't think it took over 3 days, altogether.

Q. Was there any trowel or other tool or implement used for the purpose of filling up these joints between the blocks?

A. We had no joints between the blocks.

Q. The material of the one came right up against the other, snugly?

A. Yes, sir.

Q. Did you help do the work on the floor of the malt-house?

A. Yes, sir.

Q. Explain how that was done.

A. That was done—we have used strips two inches and a half thick, I guess—say two and a half by two and a half—placed on the wooden floor; we first commenced about four feet from the wall, and about fifty or sixty feet, whatever the length of the space, we filled with the same material as the sidewalk is done—with sand, gravel, and cement.

Q. How high do you fill that up?

A. The thickness of the floor is two inches and a half.

Q. Then you filled a rectangle about fifty or sixty feet long and about four feet wide?

A. It is not particular about the length. We commence on one end four feet wide, and go as far as that will go; sometimes may be 25, may be longer; it may be 50 sometimes 75—all we have space to go.

209 Q. When you have got that done what next?

A. It is filled and finished off.

Q. How finished off?

A. With a floating board, and troweled off with a trowel smooth; floated off to get it straight—get it kind of smooth. After this floating with wooden board we trowel it off again with the trowel to get it smooth.

Q. It makes, then, a floor of cement and gravel of about two inches and a half thick, does it?

A. Yes, sir.

Q. Then this section you first mark or partition off?

A. Yes, sir.

Q. How long does it take before that gets at all hard?

A. It takes pretty nearly one week before it gets hard enough to walk on.

Q. Will it stand up at once as soon as you have laid it, or is it so soft and moist it sinks down?

A. It won't sink down, it will stand.

Q. It is made so as to stand up?

A. Yes, sir.

Q. When you have got that section finished in that way to your satisfaction do you take away these strips of wood you had laid there?

A. Yes, sir.

Q. When you take it away does that first section slip or slide down or fall down?

A. It does sometimes; yes, sir.

Q. What do you do next?

A. Place the strip again four feet from the place it has been laid. Before we fill up a new section we cut off that with a shovel—a straight joint and the other part, so we don't get a joint—to connect it together—make it one piece.

210 Q. How do you prevent forming a joint?

A. Go along with a shovel and take off a little here and there.

Q. You get the edge rough where it had been smooth before?

A. Yes, sir.

Q. You don't want a smooth edge and don't want a joint?

A. No, sir.

Q. Then you pour in new cement and gravel as before?

A. Yes, sir.

Q. Make a new section?

A. Yes, sir; work it right up together and bind it together.

Q. What do you mean by bind it together?

A. Work it together so as to make one piece of it.

Q. You want to get these two sections, then, into one solid mass, do you?

A. Yes, sir.

Q. Do you place or leave anything between the two sections when you are making a second one?

A. No, sir.

Q. Or at any time after you have finished the first one?

A. No, sir.

Q. You then make the second section in the same way as you have made the first?

A. Yes, sir.

Q. What next?

A. The third row we work the same way as the second, and so keep on.

Q. When you have got through the day's work, if the floor
211 is not yet finished, do you do anything by way of protecting it—take any provisions or different steps from what you have been taking during the day?

A. Yes, sir; the last time we fill it up square up to the strip and finish it and leave it the way it is; leave it square, not break it down the way we did before.

Q. When you go to work the next morning, what then?

A. Work right up to that again, take the strips off, take and place them back the way we did before, four feet from the other part, and

work right up to that again and try to close it as much as we can, so as not to show a joint there.

Q. Do you break down that edge when you begin the next morning?

A. No, sir.

Q. Why not?

A. It is too hard, so if we should break it down we could not bring it together so good as we could by having it straight and square.

Q. Is that the same reason that you did not break down that edge the night before when you left it?

A. Yes, sir.

Q. But you try the next morning, I understand you, to work it over so as to prevent any joint remaining there?

A. Yes, sir.

Q. If one goes over that work, then, and finds a joint or part of a joint in sight, would that indicate where the day's work had ended and the next morning's work begun?

A. In the first place, if there should be any joint coming it would be right there where the day's work has been ended.

Q. Do you endeavor to make joints or to leave no joints there?

212 A. To leave no joints.

Q. Was the whole of that floor of the malt-house done by you on the same plan and in this same manner?

A. Yes, sir.

Q. Do you recollect any other work being done for this defendant, the brewing company, at any time within the last two or three years?

A. There was a little piece of sidewalk—not for the company, it is private—for Capt. Pabst in his garden, a little piece of sidewalk around the fountain. It is not for the Best Brewing Company.

Q. Was that in blocks of different colors?

A. No, sir; plain.

Q. Was it done, then, in the same manner as this other plain work you have been describing?

A. No, sir; that is done in blocks.

Q. Were the blocks laid in the same manner as the blocks in front of the office?

A. No, sir.

Q. What was the difference?

A. Those are in square blocks—just a strip placed around in the shape. One side is the fountain. We placed the strip, I believe, about three feet or three feet and a half from the fountain, the shape of the fountain, and filled in between there, between these and the fountain, with this same material.

Q. All of one color?

A. Yes, sir; all of one color.

Q. Was this done all at once?

A. It was laid in sections.

Q. When the next section was laid was there anything
213 placed or left between the section already completed and the one you were then making?

A. No, sir.

Q. Did you design in that matter to leave joints or leave no joints?

A. Not to leave joints; only a mark to make it show like stone flags.

Q. How much of a mark is that?

A. Just a little mark on the top of the walk—just pressed in.

Q. Does it go down to any depth?

A. No, sir.

Q. What is it made with?

A. With the straight edge we generally use, beveled on both sides, made sharp to make kind of a corrugated curve.

Mr. HEY: Right along the joint?

A. Right across; yes, sir.

Mr. HEY: Made with a trowel sometimes?

A. We can't make it with a trowel; we can't do it straight.

Mr. SMITH: Make it with a straight edge, the corners of which have been beveled off?

A. Yes, sir; made sharp on one side; it is placed on the stone and rapped upon to press it in and show a mark.

Mr. HEY: Was that same thing done on the diamond blocks?

214 A. No, sir; no marks made there; all filled up there.

Q. Can you produce to us here some of these V molds and of these strips edged with rubber, having these hooks on you have described?

A. I guess I can; yes, sir.

Q. I wish you would, if you can, spare one or two of each, one of each; I wish you would do so to-morrow.

A. Yes, sir; I believe I can.

Q. When you removed the strips or at any time when you have finished the square blocks is there any impression or marks or indentation remaining on the pavement?

A. Of a diamond shape, do you mean?

Q. Yes, sir.

A. There is sometimes a little mark of the strip we place on top of the stone, and there is a little mark where the two hooks went in, and we close them up while we are leveling off this place where the stones connect.

Q. How do you close them?

A. By passing the trowel along on it. Stripe the flat trowel along. Those hooks left a little fine mark, so it won't take anything to fill it up; by pressing the trowel on it it will fill up the whole space.

Q. About how thick are those hooks?

A. They are thinner than a knife blade; the 32nd of an inch, maybe; about as thick as thin sheet iron, maybe.

Q. These marks made by the strips you speak of, if there are any, must be as wide as the strips, must they not?

A. Sometimes, and sometimes a strip warps a little, and it may mark it on one edge of the strip a little.

Q. What is the advantage of smoothing that over with a trowel afterwards?

215 A. To have it nice and smooth—not to show any cracks or anything, any marks.

Q. It is merely for the looks, then?

A. Yes, sir.

Q. Do you know how long the methods that you have described here have been in use?

Objected to as improper and incompetent—no foundation for the question by answer or otherwise.

A. About eight years, I guess.

Q. Do you know whether they were used before that time?

Same objection.

A. Not in that way, that I know of.

Q. You were not in the business before that time?

A. Yes, sir; I was.

Q. Whereabouts were you in the business before that time?

A. I have been working for Perkins and Stevenson one year before I went to the Portland Cement Company, and before that time I have been working two years or more for Jenkins and Selby.

Q. All in Chicago?

A. Yes, sir.

Q. Neither of those firms did this sort of work then?

A. They done this sort of work, but in a different way.

Q. They did not do it in the way you have described?

A. No, sir.

Q. What company or firm was it that first did the work, so far as you have any knowledge, in the way you have described?

216 A. The Portland Cement Paving Company.

Q. Do you know who Jenkins and Selby were at work for, or under what patent?

A. On the Schillinger patent.

Q. At the time you speak of?

A. At the time I was working for them—yes, sir.

Q. What was the style of work that was done at that time and by them under the Schillinger patent? Tell us, so as to explain the difference between that and the work you did in Milwaukee.

A. There was not a great difference. The work is done the same way, only instead of these strips we are using to separate the colors they put in a strip of tar paper in the joint clear down to the ground and have it stuck up above the top stone about an inch and a half or two inches.

Q. Did they leave that tar paper in between the blocks after they had finished the work?

A. Yes, sir.

Q. Do you remember the years that was done in?

A. It was done in 1872 and 1873. I was working for that party.

Q. Do you remember the name of that Mr. Selby?

A. I know him personally, and I know he lives somewhere near Milwaukee.

Q. Was it Dr. J. B. Selby?

A. I don't know his initials.

Cross-examined by Mr. HEY:

Cr. Q. How did Perkins and Stevenson lay down the blocks?

A. They have laid it pretty near the same way, only at
217 the time I was working for them they used steel strips to put in the joint between the stones.

Cr. Q. Have you got one of the Portland Cement Paving Company's circulars with you?

A. I don't think I have. I have a card.

Cr. Q. I understand you Perkins and Stevenson used a process very similar to that described by you as practiced by the Portland Cement Paving Company; is that what you mean?

A. It is done pretty nearly like it. The only difference is that the Portland Cement Paving Company use those rubber strips to lay on top the stone, and Perkins and Stevenson use steel strips put between the stones in the joint.

Cr. Q. And the metal strips used by Perkins and Stevenson were similar to your wooden strips, with the exception that the hook on the Perkins strip was continuous, while yours is only on the ends; is that so?

A. There was nothing laid on top of the stone by Perkins and Stevenson; there was nothing laid on top of the stone; there was only a strip the whole joint through; put in there.

Cr. Q. While in your case you only put the metal points on the ends of the block, between the blocks; is that it?

A. The little hooks on the wooden strips go down a little.

Cr. Q. They go down between the blocks, don't they?

A. They go between the stuff, certainly; between the cement.

Cr. Q. And the cement composes the two blocks? You did not make block pavement then; the Portland Cement Company don't make block pavement?

218 A. No, sir.

Cr. Q. It is all in one piece?

A. As I understand block pavement is blocks made and put down.

Cr. Q. I don't ask you that; I ask you whether the Portland Cement Paving Company makes block pavement, diamond block pavement, for instance?

A. No, sir.

Cr. Q. It is all solid; it is put down solid together?

A. Yes, sir.

Cr. Q. It is not divided up into blocks at all?

A. Not any more than the patterns we use, what gives the size of it. There is nothing put between it to separate it.

Cr. Q. Is it separated, in fact?

A. No, sir. After the work is done it looks like one piece; no joint or nothing to be seen whatever.

Cr. Q. Why does the Portland Cement Paving Company call their pavement diamond block pavement, Hurlbut's patent block and tile, &c.?

A. I suppose they call it so because it is marked off in blocks. The colors mark it in blocks—dark and light color.

Cr. Q. When did you last examine the block pavement in front of the Phillip Best Brewing Company office?

A. I could not tell.

Cr. Q. Can you testify that the pavement in front of Phillip Best's Brewing Company office does not distinctly show a joint between each block?

A. No, sir; I could not tell.

Cr. Q. Why not?

A. The cement, by setting or drying, will shrink, or the ground might settle a little and crack it.

219 Cr. Q. Supposing I mold two blocks in this way (counsel indicates): I first lay my scantlings the size of this envelope and lay my block; then I take the scantling up here and put it here and lay another block. The upper course is fine, as you have described, and it is floated smooth onto the other block. The material will shrink so it will open along this line between the two blocks. How will that look—smooth and straight or rough and zigzag?

A. It does sometimes look smooth and straight and sometimes not.

Cr. Q. The chances are it will be rough where it breaks off—uneven?

A. Sometimes.

Cr. Q. If you take your straight edge, however, and lay it on the joint line and then take this bevelled cutting instrument and run across in this way how will those blocks open then—in a straight line or rough and zigzag?

Objected to as immaterial and as assuming facts not proven.

A. It will open in a straight line.

Cr. Q. Am I to understand that the diamond block pavements laid by you eventually separate into separate blocks?

A. It does sometimes and sometimes not. I have seen pavements where it don't open between the colors.

Cr. Q. If they do open do they open between the colors?

A. They do open between the colors; sometimes crack across the stone where the ground heaves or settles. It sometimes opens between the colors and sometimes cracks across the stone.

220 Cr. Q. Generally speaking, how does it open?

A. It generally opens between the colors.

Cr. Q. Then it forms a joint there?

A. Yes, sir.

Cr. Q. Now, the parting strips with the hooks on, how is that withdrawn from between the blocks—with a draw or right up straight?

A. We ain't particular about getting it off; just take hold of it and get it off.

Cr. Q. You draw it out, don't you?

A. No; generally lift it straight up with the ends.

Cr. Q. How do you do it sometimes? Do you draw it sometimes?

A. We can. Those little hooks would cut into the stone.

Cr. Q. You do draw it a little?

A. No.

Cr. Q. Not a bit?

A. By lifting it up it might slip. We try to get it up without drawing it.

Cr. Q. You exercise great care in taking it out?

A. Not very great care. A man what is used to taking them out don't care much.

Cr. Q. You have to draw it straight—perfectly straight; you can't deviate a hair's breadth?

A. If it don't come up straight it don't matter.

Cr. Q. Won't you explain what you meant by saying, a moment ago, that you were not particular how you took it up?

A. Why, as I say, I am used to it, and I don't see anything particular why I can't take them up; you just take hold of them and get them up without hardly looking at them.

221 Adjourned until to-morrow morning at ten o'clock.

FRIDAY, *November 22nd*—10 a. m.

Cross-examination of witness continued:

Cr. Q. The strip with hooks on it is champered off on the edge to which the rubber is secured and the edge with the rubber comes between the two blocks, does it not?

A. No, sir; it comes right on top of one block.

Cr. Q. And also marks off the two blocks?

A. Forms the edge of the two blocks in the different colors; the color marks the blocks.

Cr. Q. And this strip goes on the edge of the union of the two colors?

A. Yes, sir.

Cr. Q. Does this strip leave a distinct line across the two blocks when it is first taken up?

A. The strip don't; the color itself shows the line.

Cr. Q. Who besides yourself was engaged in doing this Milwaukee work for the Best Brewing Company?

A. Mr. Witt, this gentleman sitting right here.

Cr. Q. Who did you do the work for?

A. I was working for the Portland Paving Cement Company.

Cr. Q. Who was the manager of the company?

A. J. B. Hurlbut.

Cr. Q. And the Best Company's pavement was laid in the usual way that Hurlbut makes his pavements?

A. Yes, sir.

Cr. Q. Did you do the work in the Best Company's fermenting-room?

A. No, sir.

Cr. Q. Who did?

222 A. I don't know.

Cr. Q. Was that done when you got there?

A. I don't know if it is the fermenting room; that storehouse, whatever it is, was done at the time with asphalt, as much as I know.

Cr. Q. State what work you did do on the malt house on the corner of Tenth and Chestnut streets.

A. Laid the malt floors, a couple of floors in the drying kiln where they dry the malt.

Cr. Q. Belonging to the malt house?

A. Certainly.

Cr. Q. Where was this work done?

A. In the office building.

Cr. Q. Who did that?

A. I did.

Cr. Q. And you can't state how the floor was made there?

A. No, I can't. I believe it is made the same way we have laid the malt floors.

Cr. Q. Why can't you state?

A. Because I don't recollect.

Cr. Q. Had there been a fire at the malt house just before you did this work?

A. There had been a fire before that time.

Cr. Q. And had a good deal of water been thrown in the malt house?

A. I don't know; when we got there the new building was partly up.

Cr. Q. Where was this work done?

A. On the corner of Tenth and Chestnut.

Cr. Q. And where was this new building?

223 A. That is the new building what burned down; I have not seen the fire and have not seen the old building.

Cr. Q. Was there any provision made at that time when the malt-house work was done for any shrinkage?

A. No, sir.

Cr. Q. Did you afterwards go back to Milwaukee and fill in some of the work?

A. Yes, sir.

Cr. Q. When was that; soon after it was laid?

A. May be a month or two; I can't tell—a month or two after the time it was finished.

Cr. Q. Describe that work you did on that occasion.

A. I filled up the cracks where the floor was cracked with cement.

Cr. Q. Was it not understood that when you first left the malt-house job that some settling and shrinkage was expected?

Question objected to and the form of it in particular.

A. It was expected that the floor might not crack if the building did not settle.

Cr. Q. Was not the joints in the malt-house floors paved under the expectation that the floor would settle and the cracking could be better controlled by trowelling them?

A. No, sir.

Cr. Q. Are you certain of that?

A. Yes, sir.

Cr. Q. Name all the men that worked on that job with you.

A. George Witt, Klaus Miller, Gottleib Staeke, William
224 Swambach, Henry Ries, Charles Helwig—that is all the names what I recollect. There has more men been working there, but I don't recollect their names.

Cr. Q. Was Henninghausen there?

A. Yes, sir.

Cr. Q. Was John Farley there?

A. I don't know him.

Cr. Q. Are you working for Hurlbut now?

A. Yes, sir.

Cr. Q. Mr. Hurlbut has been sued for infringing this same patent?

A. I don't know.

Cr. Q. Did you make an affidavit in a suit in which Hurlbut was interested in lately?

A. Yes, sir.

Cr. Q. Who was that suit against?

A. I didn't get acquainted with it; I don't know.

Cr. Q. Who drew that affidavit?

A. I don't know the man's name.

Cr. Q. Did you do some work in the malt house in a room in which there were some large vats?

A. Tanks, do you mean?

Cr. Q. Yes, sir.

A. No, sir.

Cr. Q. Did you see any work done in that room?

A. No, sir; I have not seen the work done; I have seen the floor.

Cr. Q. When did you see the floor?

A. After it was done.

Cr. Q. Who did it?

A. As I understood it was a man by the name of George Winding, of Milwaukee.

Cr. Q. When was that done?

225 A. After the cement floors was done.

Mr. SMITH: Is it claimed that the room of which you are now inquiring is also laid in violation of the Schillinger patent?

Mr. HEY: I understand that room has some pavement in it which we claim is an infringement.

Cr. Q. When did you work for Perkins and Stevenson?

A. I believe it was in the season of 1874.

Cr. Q. Who were with you when you first learned to do this kind of work?

A. Jenkins and Selby, in the city of Chicago.

Re-examined:

R. D. Q. Please explain what are these objects and materials which you have brought up here this morning. First, what is this piece of wood with a rubber strip on and two iron strips fastened to the edge?

A. We call it a parting strip.

R. D. Q. And now marked "Exhibit A." Is that one of the strips used to prevent the color of the block forming from running over onto the block already completed?

A. Yes, sir.

R. D. Q. Is it one of those pieces which has been actually in use by you?

A. Yes, sir.

R. D. Q. How long has it been used?

A. That strip has been used for probably six or seven years.

226 R. D. Q. Can you spare us that piece to take with us to Milwaukee?

A. Yes, sir.

R. D. Q. When this is in use the rubber is underneath, is it?

A. Yes, sir.

R. D. Q. Lying flat on top of the completely finished block?

A. Yes, sir.

R. D. Q. And the edge of the strip to which the iron hooks, as you call them, are attached lies directly over the edge of the completed block?

A. Yes, sir.

R. D. Q. Please tell us what those other things are.

A. This is the mold frame, we call it. This piece of wood marked B is a frame. It is a frame what is placed on the ground for to get the shape of the stones. This is the right frame. We have another which reverses that—runs the other way.

R. D. Q. This is the right-hand frame?

A. Yes, sir.

R. D. Q. What is the difference between the right and left hand frame?

A. The right-hand frame is beveled to the right and the left hand frame beveled to the left.

R. D. Q. These are beveled, you say, according to Hurlbut's patent?

A. As I understand.

R. D. Q. What is the object of beveling or sloping these edges?

A. To keep the blocks from sinking down and heaving.

R. D. Q. So that one will not rise without another one?

227 A. To keep them in place.

R. D. Q. Does that facilitate or prevent the taking out of one block?

A. You could not take out one of those blocks without cutting them to pieces.

R. D. Q. This piece, B, is calculated for making blocks of only two or three inches square. Is this the true size you use or only a model?

A. Only a model of the kind we use.

R. D. Q. What is this board marked C here?

A. That is a model of a sidewalk. It shows the way how we lay it.

R. D. Q. Partly covered with sidewalk or laid?

A. Yes, sir.

R. D. Q. Are these blocks which are here laid actually made with cement?

A. Yes, sir.

R. D. Q. Are these laid in the manner you have described—these particular blocks here?

A. Yes, sir.

R. D. Q. Laid with a frame, then, are they?

A. Yes, sir.

R. D. Q. And I notice the edges of these are beveled. They are beveled by a frame of this sort, are they?

A. Yes, sir.

R. D. Q. What are these small pieces of wood and rubber—six pieces of rubber?

A. Those rubber pieces represent the strips for this little mold.

R. D. Q. Were those pieces of rubber actually used in making this little model here?

A. Yes, sir.

228 R. D. Q. How many of these pieces of rubber or the corresponding strips are used at one time in laying the blocks?

A. It requires two strips to lay one block.

R. D. Q. To be laid along the projecting edges of the finished block?

A. Yes, sir.

R. D. Q. And when you lay three blocks at a time you use six of these strips?

A. Yes, sir.

R. D. Q. I observe that some of these strips have the hooks, as you call them, and some don't?

A. Yes, sir.

R. D. Q. In common use do they all have hooks or do they not?

A. They don't all have hooks. Sometimes, where the hooks get broken off, we have to use them without hooks.

R. D. Q. You can use them without the hooks?

A. Not as good. They very easy get out of place. We can use them without the hooks.

R. D. Q. In that case you have to have somebody hold them in place?

A. Yes, sir.

R. D. Q. While if you have the hooks they stay in place themselves?

A. Yes, sir.

R. D. Q. Those hooks project down at the joints?

A. Yes, sir; those hooks will actually press into that stone, what is finished already and laid. They would be exactly where the joint will be. They press into the stone we have laid.

229 R. D. Q. On account of the beveled edge?

A. No, sir; so as to have it lay solid, so it can't slip.

R. D. Q. The hooks should be pressed up against the edge of the stone firmly enough, so as to hold the strip in place while the work is going on?

A. Yes, sir.

R. D. Q. What is the other piece of wood, marked D?

A. That is a straight edge, we call it, over the frame and on those strips. This piece marked D is called the straight edge.

R. D. Q. Is this piece marked D, called the straight edge, the full size of the straight edge used, or is it merely one attached to this model?

A. Attached to this model only.

R. D. Q. The frame is so laid that the exterior angles touch the exterior projecting angles of the completed blocks?

A. Yes, sir.

R. D. Q. Leaving a square in the center?

A. Yes, sir.

R. D. Q. With edges sloping to the right or left, as the case may be?

A. Yes, sir.

R. D. Q. I observe a notch cut on one side of this straight edge—a piece cut out; why is that?

A. To work the straight edge on top of the strips—to get it a right gage.

R. D. Q. In use, then, that edge out of which the notch is cut is the lower edge?

A. Yes, sir.

230 R. D. Q. And that notch is cut, as I understand you, to allow the straight edge to pass over these strips you have described?

A. Yes, sir.

R. D. Q. How deep is the notch cut in the straight edge?

A. The thickness of the parting strips.

R. D. Q. So that it allows the remainder of the straight edge to pass over the block you are making, just at a level with the blocks that are completed?

A. Yes, sir.

R. D. Q. In use, how is the straight edge ordinarily held?

A. It is held across the sidewalk or across the blocks. It is held across the frame with the end what is notched out on top of the strips.

R. D. Q. The end on which the notch is is held in the direction of the work that has been completed, then?

A. Yes, sir.

Recross-examined:

Re-Cr. Q. When you first commenced to make these blocks you placed your frame in position, then filled in coarse material?

A. Yes, sir.

Re-Cr. Q. Composed of sand, gravel, cement and water?

A. Yes, sir.

Re-Cr. Q. Then you tamped it down?

A. Yes, sir.

Re-Cr. Q. In the mold?

A. Yes, sir.

Re-Cr. Q. Then you float over it the fine upper course.

231 A. Yes, sir.

Re-Cr. Q. Composed of half sand, half cement, mixed with water?

A. Yes, sir.

Re-Cr. Q. Then you strike off the top?

A. Strike it off with a straight edge to get it straight.

Re-Cr. Q. When that is partly set you move your frame along to a proper position?

A. No, sir; we have to finish that first, before we can remove the frame.

Re-Cr. Q. How?

A. With the floating board and trowel.

Re-Cr. Q. Now what do you do?

A. Take off the strips—what they call the parting strips—and finish whatever there is of a little mark made from the strips on the stones.

Re-Cr. Q. Do you remove the frame?

A. Yes, sir.

Re-Cr. Q. And place it in position for the next?

A. Yes, sir.

Re-Cr. Q. You fill in the coarse material again?

A. Yes, sir.

Re-Cr. Q. How much cement is there in the coarse material?

Objected to as immaterial.

A. About one to seven.

Re-Cr. Q. You tamp down this next course of coarse material?

A. Yes, sir.

Re-Cr. Q. You tamp down along the block that is already formed, and all around?

A. Yes, sir.

232 Re-Cr. Q. Tamp it down level and hard, so as to make it compact?

A. Yes, sir.

Re-Cr. Q. The block already formed has partially set?

A. Yes, sir.

Re-Cr. Q. And in tamping in the coarse material it don't unite thoroughly with the material of the block already formed?

A. It will work up as soon as it can; sometimes it works into the other block.

Re-Cr. Q. Sometimes a piece of stone or gravel will work into the other?

A. Yes, sir.

Re-Cr. Q. It don't adhere to it as firmly as it does to the particles of the mixture in the other block just being formed?

A. No.

Re-Cr. Q. After you have got that to a proper height, you mix your fine material again and put that in?

A. Yes, sir.

Re-Cr. Q. The fine material is half cement and half sand, mixed with water?

A. Yes, sir.

Re-Cr. Q. And that is floated in right up close to these strips on the first block?

A. Yes, sir.

Re-Cr. Q. Then that is finished off in the same way?

A. Yes, sir.

Re-Cr. Q. And this strip here, with the points on it marked A, is also employed in that block to separate the colors?

A. Yes, sir.

233 Re-Cr. Q. And these points go down between the blocks like that, for instance, to hold it in position?

A. Yes, sir.

Re-Cr. Q. Have you examined sidewalks laid in this way, say two or three months after they have been down?

A. Yes, sir.

Re-Cr. Q. Can the joints between the blocks be distinctly seen usually?

Objected to as immaterial.

A. Sometimes they can and sometimes not.

Re-Cr. Q. But generally they can?

A. Sometimes I find the joints closed a year after and sometimes they open in a short time.

Re-Cr. Q. But they eventually do open?

A. Not all.

Re-Cr. Q. Generally they do—generally speaking?

Objected to.

A. They sometimes open and sometimes not.

Re-Cr. Q. Take ten cases, after a walk has been down six months, how many out of ten will open?

Objected to as immaterial.

A. After six months there would not half of them be opened.

Re-Cr. Q. How would it be after nine months?

A. They would be open more.

Re-Cr. Q. Eventually they all open?

A. No, sir; I have seen work done that didn't open after three or four years.

234 Re-Cr. Q. Where did you see a sidewalk that didn't open after three or four years?

A. I don't remember; but if I go around I can find some.

Re-Cr. Q. Name a single instance of a sidewalk where the joints did not open in three years.

A. I could not name a place just now unless I go and look them all up. I can't remember where I saw them.

Re-examined:

Re-R. D. Q. I see this model here has a wooden floor. Is that merely used in this model for the sake of holding it in place or is it something you use in making sidewalks?

A. That represents the ground where we lay the sidewalk usually.

Re-R. D. Q. It has, I see, wooden strips around the edge of this floor. What does that represent?

A. The curb around the sidewalk. This side there is no wall to work up against.

Re-R. D. Q. Were the blocks which you laid in front of Phillip Best's brewing office in Milwaukee made with beveled edges as those are?

A. Yes, sir.

Re-R. D. Q. You are a German by birth?

A. Yes, sir.

Re-R. D. Q. You never did any of this work until you came to the United States?

A. Yes, sir; I did some work in Germany before I came here.

Objected to.

Re-R. D. Q. This sort of work?

A. Not the diamond work—not the different colors.

235 Re-R. D. Q. How long ago was that?

Objected to.

A. Pretty near 20 years ago.

Re-R. D. Q. How much work did you do then?

A. I could not say how much, but I have laid cement floors—not sidewalk.

Re-R. D. Q. Did you do the work then substantially in the way in which you laid this floor in Milwaukee?

A. Yes, sir.

Re-R. D. Q. Give some idea how many such floors you laid, if you can, or how long you worked at that sort of work?

A. I worked at that work for a couple of years in Germany.

Re-R. D. Q. What part of Germany?

A. Northern part.

Re-R. D. Q. What place or places?

A. In Holstein province.

Re-R. D. Q. How large is that province—that is, in how large a portion of the province that you did work of this sort?

A. I done that work different places in the province, but I could not tell how many places.

Re-R. D. Q. Can you name some of them?
A. Yes, sir.
Re-R. D. Q. Do so, if you please.
A. Ehmsorn.
Re-R. D. Q. Is that a village?
A. Yes, sir; it is a city now. It was a village at that time.
236 Re-R. D. Q. Do you know of other work being done of that sort besides what you did?
A. Yes, sir.
Re-R. D. Q. Give me some idea how much you knew about it and how much work there was you knew about.
A. I could not say how much work I done. I say I have worked at it for two years and at different places.
Re-R. D. Q. Were you the head man or were you a workman employed under others?
A. A workman employed under others.
Re-R. D. Q. In what sort of buildings were these floors laid which you saw in Germany?
A. In residences.
Re-R. D. Q. In the cellar or other parts?
A. Cellars and main floor, too.
Re-R. D. Q. In any factories or breweries or any such establishments as that?
A. Yes, sir.
Re-R. D. Q. What?
A. In breweries.
Re-R. D. Q. How were those cement floors laid—by the use of what implements?
A. They are laid the same way we do now; the same tools are employed we are using here.
Re-R. D. Q. I don't ask you about what you are using in Chicago, but as compared with those you used in Milwaukee in laying the floor of the malt house there. How did those tools and that method you used in Milwaukee you have already once described compare with those used in Germany 20 years ago?
A. About the same.
237 Re-R. D. Q. You laid the floors there in sections, did you, in Germany, just the same as in Milwaukee?
A. Yes, sir.
Re-R. D. Q. The manner of laying it was just the same as the manner of laying that Milwaukee malt-house floor.
A. Yes, sir; only we used different material.
Re-R. D. Q. What material did you use in Germany?
A. Instead of the poorest course of gravel we have to use brick. We have no gravel there.
Re-R. D. Q. Do you know whether or not that was the common method of laying such floors?
A. It was at that time.
Re-R. D. Q. Do you know whether or not those floors were in common use there—in that part of Germany?

A. There was not so much done there as here now; not so much used of it as there is here now.

Re-R. D. Q. Can you give me any idea of how much use there was of them?

A. No; I could not.

Re-R. D. Q. How old were you there?

A. Probably 17 or 18 years of age.

Counsel for the plaintiff objects to all the testimony of the witness relating to use in Germany as incompetent and gives notice that he will move to have the same suppressed on the hearing of this case.

The signature of the witness to this deposition is waived, and it may be written out by the short-hand writer and read as if read to the witness and signed.

238 GEORGE WITT, called by defendant, being sworn, testified:

A. I live in Chicago. I am 47 years old; am a German, and have been in this country about 17 years.

Q. What is your business?

A. I have worked ten or eleven years on this cement business. I have no other business.

Q. Have you lived in Chicago all that time?

A. I was away some time, and back again.

Q. Were you working at Milwaukee on this malt-house floor and sidewalk of the Phillip Best Brewing Company?

A. I was working on the malt floors, not on the sidewalk.

Q. Who hired you?

A. Mr. Hurlbut.

Q. Were you there with Miller, the last witness?

A. Yes, sir.

Q. Did you see the whole of that malt-house floor laid?

A. Yes, sir.

Q. How was that laid?

A. We laid the scantling down about four feet wide, and then finished it, and afterwards we took the scantling out and laid it back about four feet.

Q. What part of the floor did you begin at; at the end or at the side or in the middle?

A. Along the side.

Q. How big was the scantling that you used?

A. About a half an inch.

Q. High?

A. Yes, sir.

Q. Do you remember how long?

A. No; some was 16 or 14 feet long.

Q. What did you lay that cement floor upon? What was under it?

239 A. There was a wooden floor under it.

Q. How thick was this cement floor when finished?

A. I don't know exactly.

Q. About how thick?

A. About two and one-half or three inches.

Q. When you started out how far did you lay this scantling from the side of the house on which you began working?

A. About four feet.

Q. What did you do then, after laying that scantling?

A. Filled it up.

Q. With the material for the floor?

A. Yes, sir.

Q. After you had got this space between the scantling and the wall filled what next?

A. We moved it back.

Q. Moved the scantling back?

A. Yes, sir.

Q. When you moved the scantling back did the edge of the floor you had just been laying stand up straight?

A. We cut it down with a shovel or trowel.

Q. What for?

A. To keep it close together.

Q. When you cut the edge down did you make it smooth or rough?

A. The edge of the floor—we smoothed it before; then we cut it down and filled it up again, and then we put the fine stuff on and smoothed it over again.

Q. After you had taken away the scantling the edge of the floor stood up straight, did it?

A. Yes, sir.

240 Q. Then you went along that edge with a shovel and broke it down?

A. Yes, sir.

Q. When you had gone over it with a shovel and broken down the edge was the edge left then, after you had gone over it with the shovel—before you did anything else—was the edge left straight or rough?

A. Rough.

Q. Then, having moved your scantling back about four feet again, what did you do next?

A. We filled it up again.

Q. With the cement and gravel?

A. Yes, sir.

Q. And sand?

A. Yes, sir.

Q. Did that new cement, gravel, and sand which you poured into the second space come up against these rough edges of the floor first laid?

A. Yes, sir.

Q. Filled up all these little notches and breaks in the first floor?

A. Yes, sir.

Q. What was the object of breaking down this first smooth edge?

A. To keep the joints together, so as to keep the old to the new so it don't show a joint afterwards.

Q. If you did not break this down, but poured in or put in the

new material against the old, how would it operate where you put the old and the new together if you had not broken it down with the shovel?

A. We work so close together as we can.

241 Q. You don't understand my question. Suppose, if you put the scantling four feet back without breaking down this first edge at all—suppose you do not use the shovel and you put in the new material up against the old material—the old edge of the section you had completed—then how would it act afterwards; how would it look; what kind of a floor would it make?

A. It looks all in one.

Q. If you did not break down—if you did not break down the joints—then how would it look?

A. About the same; you can't see much joints then.

Q. But when you break the edge down, then how is it?

A. All the same; just it sticks a little more together.

Q. Can you take up, then, one section of this floor without breaking the other section after it is made?

A. No.

Q. After you have got a second section made in the same way do you break down the edge of the second section with the shovel?

A. Yes, sir.

Q. And so with the third and all the rest of them?

A. Yes, sir.

Q. Do you try to make a floor that shall be in sections—separate from each other—or do you try to make it all one solid floor?

A. Make it all in one solid floor.

Q. Was that the way you made that floor in the malt house?

A. Yes, sir.

Q. How many floors did you make?

A. Six or seven.

Q. Did you see the work done on the sidewalk?

242 A. No.

Q. You did not see the men when they were at work?

A. Sometimes I was inside and sometimes outside.

Q. Did you see what kind of tools the men used who were at work on the sidewalk?

A. No.

Q. Did you see any of them—what kind of tools they used?

A. I guess they were the same tools they used; they used that parting strip what they used inside—the same tools.

Q. Did you see those parting strips in use there on the sidewalk?

A. Yes, sir.

Q. Were those parting strips you saw used there like this one, marked A, here?

A. I don't know as I can say that.

Q. Did you notice the little strips of leather along the side?

A. Yes, sir.

Q. Did you use these things yourself—those parting strips?

A. We use them here in Chicago—on the sidewalk.

Q. But not in Milwaukee?

A. No, sir.
Q. You did not use them yourself?
A. No, sir.
Q. Have you used, in making sidewalks here in Chicago, frames like this one which is marked B?
A. Yes, sir; just the same shape.
243 Q. You notice the edges of these frames and the edges of the stone blocks laid in the model here are not straight up and down, but sloped off?
A. Yes, sir.
Q. Are the stones and the frames—that is, the stone blocks made by you and the frames used by you in the sidewalk—beveled the same as these?
A. Yes, sir.
Q. Do you know whether the blocks laid in the Milwaukee sidewalk are beveled in the same way, having a sloping edge as these do?
A. I can't say that.
Q. You did not notice it?
A. No, sir.

Cross-examined:

Cr. Q. You say John Miller was at Milwaukee with you?
A. Yes, sir.
Cr. Q. Was he there all the time?
A. He was away about a week, I guess.
Cr. Q. But he was there all the time, excepting a week?
A. Yes, sir.
Cr. Q. Are you sure of that?
A. Yes, sir.
Cr. Q. Who else was there?
A. Klaus Miller, Stetke, Swambach, Helwig, Hendrick Ries. I don't know any other names.
Cr. Q. Which floor did you lay first in the malt house?
A. Laid the basement first.
Cr. Q. That was laid in sections?
A. No, sir.
Cr. Q. How was it laid?
A. Just the same way.
244 Cr. Q. You say it was not laid in sections—laid by scantlings?
A. Yes, sir; laid the same way as the upper floor.
Cr. Q. Was there any tanks in that room?
A. No, sir.

Defendant's counsel suggests that the witness does not understand the question.

Cr. Q. Do you have any difficulty in understanding English?
A. I understand what you mean.
— Q. Which floor did you lay after the basement?
A. I don't know exactly; I guess it was the second floor.

Cr. Q. Then you went right on up, through 3, 4, 5, 6, and 7?
A. Yes, sir.
Cr. Q. Did you use the shovel or trowel on each one of those floors?
A. Yes, sir, cutting down the edges.
Cr. Q. By the edges you mean the point where the two blocks come together or two sections come together?
A. Yes, sir.
Cr. Q. And you first mixed up coarse material?
A. Yes, sir.
Cr. Q. You put that in the frame?
A. Yes, sir.
Cr. Q. Then tamped it down?
A. Yes, sir.
Cr. Q. With a tamp?
A. Yes, sir.
Cr. Q. That was all tamped down in a frame? Suppose
245 this was a block, now, tamp it all down level, hard?
A. Solid; yes, sir.
Cr. Q. Then you put on your fine material on top?
A. Yes, sir.
Cr. Q. How thick was that?
A. About half an inch or three-quarters.
Cr. Q. That was half sand and half cement?
A. Yes, sir.
Cr. Q. Mixed with water?
A. Yes, sir.
Cr. Q. How did you do the ends of these sections—on the ends?
A. We got up close to the wall.
Cr. Q. How wide were the floors?
A. I don't know exactly.
Cr. Q. 50 or 60 feet?
A. I guess about that.
Cr. Q. Did your scantling run away across the whole width in one piece?
A. Yes, sir; laid the whole row along, clear across the floor.
Cr. Q. Did you use more than one scantling?
A. Oh, yes, sir.
Cr. Q. You did not have any end joint at all?
A. No; not that I know of.
Cr. Q. Are you certain of that; are you certain you did not make any end joint?
A. Yes, sir; we could not get to the end.
Cr. Q. Then you had to make them?
A. Yes, sir.
Cr. Q. When you made those end joints did you cut down with a shovel, the same as on the side?
246 A. Not when it was hard.
Cr. Q. In that case you cut down on the coarse material?
A. Yes, sir.

Cr. Q. In cutting down with a shovel or trowel, did you cut right down to the floor?

A. No, sir; just to the top—just about half way down.

Cr. Q. When you came to make the second block your material would be pretty well set in the first—be pretty hard?

A. Not so very hard.

Cr. Q. But set so it would stand alone?

A. Yes, sir.

Cr. Q. You worked in that way right across the building?

A. Yes, sir.

Cr. Q. Wherever the work would run out you put in an end joint?

A. Yes, sir.

Cr. Q. That is about the way you make what you call flag pavement?

Objected to as immaterial.

A. I don't know—they are just about the same.

Cr. Q. As the flag walks that Mr. Hurlbut makes?

A. Yes, sir.

Re-examined:

R. D. Q. How long have you been in this country?

A. 17 years.

R. D. Q. Did you work at this kind of work in Germany?

Objected to.

A. No, sir.

Mr. WITT recalled by defendant:

Q. Mr. Hey asked you whether one of those floors that you laid in Milwaukee was in the room where there were tanks. Do you know what is meant by that word "tank?"

A. Those big tubs.

(Signature waived and same stipulation as before.)

247 JOHN PIETSCH, called by defendant, being sworn, testified:

A. I live in Chicago, and have lived there about eleven years; before that I lived in Germany. I am 42 years old.

Q. What is your business?

A. Bricklayer.

Q. What was your business in Germany?

A. Bricklayer.

Q. Are you engaged in laying cement floors or sidewalks?

A. Here in Chicago? Yes, sir.

Q. How long have you been engaged in that work?

A. About ten years—nine years.

Q. Did you do anything of the kind in Germany?

Objected to.

A. No, sir.
Q. I mean laying cement floors?
Objected to.
A. I laid cement floors there; yes, sir.

248 It is here stipulated that objection of the plaintiff's counsel to what was done in Germany applies to all that testimony produced on the part of the defense.

Q. For whom are you at work in this city—for yourself or some one else?
A. For Mr. Hurlbut. First, for Jenkins and Selby, and after that for Perkins and Stevenson.
Q. How long have you been working for Hurlbut?
A. About three years now.
Q. Did you do any of this work in Milwaukee, or were you present at it?
A. Yes, sir.
Q. Do you know whether Jenkins and Selby were at work under the Schillinger patent?
A. I guess so.
Q. What work did you help do or see done in Milwaukee for the Phillip Best Brewing Co.?
A. Nothing.
Q. I thought you said you were doing work there?
A. I was working in Milwaukee, but not for Best Brewing Company.
Q. What work did you do in Milwaukee?
A. Laid a malt floor there for Asmuth and Kraus.
Objected to as immaterial.
Q. What are they?
A. Malsters.
Q. When did you do that work?
A. The last time I was there was last winter; it is last winter.
Q. Who sent you there to do that work?
A. Mr. Hurlbut.

249 Q. Was he the same person that did this work in the Phillip Best Brewing Company?
A. Yes, sir.
Q. Did you see any of the work that had been done for the Phillip Best Brewing Company?
A. I was there once and saw it after it was done.
Q. Do you mean at the sidewalk or in the malt-house?
A. I was at the malt-house, and I seen the sidewalk, too.
Q. Did you see the work that had been done by Mr. Hurlbut, of which Mr. Miller and Mr. Witt have spoken?
A. Yes, sir.
Q. Did you recognize the work as done by Mr. Miller for Mr. Hurlbut? Did you know it for their work?
A. I guess so.

Q. What was the way in which you did your work for Asmuth and Kraus?

Objected to.

A. Just the same way as Miller.
Q. Made it in sections with scantling?
A. Yes, sir; laid a scantling, filled it up, moved it out, cut down the edge, and worked it up.

Objected to as improper, incompetent, and irrelevant, and to all testimony relating to work done for Asmuth and Kraus for the same reason.

Q. You answered just now that you did your work the same way that Miller did his work; tell me how you know that.
A. I heard George Witt's testimony just now.

Counsel for plaintiff makes further objection that the witness is testifying from hearsay.

250 Q. Could you tell by the looks of the work on the malt floors of Best Brewing Company whether it was done in the same way that you did this at Asmuth and Kraus'?
A. I guess so.
Q. Could you tell, do you think, by the looks of it, whether or not it was Miller's or Hurlbut's work or done in their way?
A. No.
Q. Did you notice this sidewalk in front of Phillip Best's office?
A. Yes, sir.
Q. Do you know by the looks of that walk, by seeing it, how it was laid?
A. No, sir.
Q. Have you ever seen John Miller, the witness here yesterday, lay sidewalks?
A. Yes, sir.
Q. Have you seen him lay cement floors?
A. Yes, sir.
Q. Have you worked with him when he laid them?
A. Yes, sir.
Q. Do you see this model of sidewalk here?
A. Yes, sir.
Q. Please look at that model and see whether or not that is according to the shape and form of your blocks that you make here in the sidewalks.
A. Yes, sir; just the same.
Q. Look at the model of the frame that is here, marked "B," and tell me whether that is of the shape and form of the frame you used.
A. Yes, sir; the same exactly. We have one left-hand and one right-hand frame.
251 Q. What is this—left or right hand?
A. Right.
Q. The left-hand frame is the same thing, only the slope is to the left?

A. Yes, sir.

Q. Do you know whether the blocks in Milwaukee, of the sidewalk there, have beveled edges like this, or don't you know?

A. No. I expect that all them frames we have here they were made alike. I have seen no other frames here.

Q. Did you see, in Milwaukee, any of the frames used there by Mr. Miller?

A. No, sir.

Q. Did you use, in Milwaukee, any frames and lay blocks like these?

A. No, sir.

Q. What tools did you use in Milwaukee?

A. Just a floating board, plasterer's trowel, and brick trowel.

Q. You used no parting strips, then?

A. No, sir.

Q. I will ask you what you call this piece of wood, marked A, here?

A. Parting strips.

Q. Where and when do you use parting strips?

A. When we lay the sidewalks.

Q. If you lay a sidewalk all of one piece, like cement floor, then do you use parting strips?

A. No, sir.

Q. How long after the cement floor was laid in Phillip Best's malt house did you see it?

A. I don't know how long after.

252 Q. A year—two or three?

A. No, sir; it was in the same year, I guess; I don't know exactly.

Q. What was the object of breaking down the edge of the section that was already made before you put on the materials for the new section?

A. I guess we have to see that we get it tight—no crack, no joint in it—that water comes not through.

Q. In laying floors as you and Miller laid them, do you try to have the blocks in the floors or do you try to make it all one solid mass?

A. We try as good as we can to get it all in one.

Q. When you lay blocks in sidewalks with Miller, and as Miller does it, do you try to have these blocks so you can take one out by itself or make it all solid together?

A. Make it all solid together.

Q. So far as you could see by the looks of the sidewalk in front of the Brewing Company's office in Milwaukee, were there used in making it any strips put down between the blocks?

A. No, sir; nothing between them.

Q. Do you ever use strips put down between the blocks?

A. No, sir.

Q. Did Miller ever use them that you know of?

A. I never seen him.

Cross-examined:

Cr. Q. Did you lay any sidewalks in Milwaukee when you was with Jenkins and Selby?

A. No, sir.

Cr. Q. Only in Chicago, here?

253 A. Yes, sir.

Cr. Q. You worked for Perkins and Stevenson, too?

A. Yes, sir.

Cr. Q. What kind of work did you do for them?

A. Laying sidewalks.

Cr. Q. Same kind?

A. Yes, sir.

Re-examined:

R. D. Q. What kind of work did you do for Jenkins and Selby?

A. Laying sidewalks.

R. D. Q. Also floors?

A. No; not floors.

R. D. Q. How did Jenkins and Selby lay sidewalks—in the same manner as Hurlbut did or in a different way?

A. In a different way.

R. D. Q. What was the difference?

A. The edges of the stone were straight down; we put some tar paper between them—put it down to the bottom; it extended two or three inches above the stone. After the stone was hard we took a trowel and cut it off on top of them stones.

R. D. Q. Did Hurlbut or Miller or yourself do anything of the kind?

A. No, sir.

R. D. Q. Could you tell by the looks of the sidewalk laid in Milwaukee, that you saw in front of the Brewing Company's office, whether there was anything of that kind used there?

A. I didn't look at that.

254 Examination of Mr. PIETSCH continued by Mr. SMITH:

R. D. Q. I show to you now two pieces of tin, about a foot long and two and a half or three inches wide, one edge of which is turned over about a quarter of an inch, and I ask you if you have ever seen such tins before in use in laying sidewalks; and, if so, by whom?

A. I have seen them here when I was working with Perkins.

R. D. Q. How were those tins then used?

A. We put them this way, on top of the stone.

R. D. Q. Those were laid with the broad part on top of the stone?

A. Yes, sir.

R. D. Q. That is, of the stone block that was completed?

A. Yes, sir.

R. D. Q. How far down did these tins turn over the edge of the completed block?

A. About the same—just about the same as this; sometimes a little wider.

R. D. Q. How much—quarter of an inch?

A. Yes, sir; I guess.

R. D. Q. Do you use those things at all now, or does Hurlbut, or does Miller use them?

A. No, sir.

R. D. Q. Did Hurlbut or Miller use tins or other instruments like this at the time that the work was done in Milwaukee for the Brewing Company?

A. No, sir.

Recross-examined:

255 Re-Cr. Q. Did Hurlbut or Miller use an instrument like this?

A. They use just the same as that is now.

(Parting strip, letter A.)

Re-Cr. Q. With the hooks on it?

A. Yes, sir.

Re-Cr. Q. The hooks go down between the two blocks?

A. Yes, sir.

Re-examined:

Re-R. D. Q. About how far do these hooks, as they are called, project below the level of the sidewalk?

A. I guess pretty near half an inch.

Signature waived.

256 J. B. HURLBUT, called by defendant, being sworn, testified:

A. I reside in Chicago; I have lived here something like 26 years.

Q. What is your business?

A. Making cement pavement for the last number of years.

Q. For how many years have you been connected with that work?

A. Altogether ten years next June.

Q. Running back for a period exceeding ten years?

A. No, sir; a little less than ten years.

Q. Did you have anything to do, and, if so, what, with the cement-work done at Milwaukee for the Philip Best Brewing company, of which complaint is made in this suit?

A. Yes, sir.

Q. What was your connection with that?

A. I contracted to do the work there.

257 Q. With the Best Brewing Company?

A. Yes, sir.

Q. Was that contract in writing or oral?

A. It was a proposition accepted by them, with their signature.

Q. What was the proposition?

A. To furnish all the material and lay the work—the floors in the malt house.

Q. Anything else?

A. For a certain price; furnish all labor and material.

Q. Did you have anything to do with the sidewalk, too?

A. Yes, sir.

Q. What was the agreement on your part as respects the sidewalk?

A. We were to lay that and furnish the labor and material.

Q. What was defined as to the character of the work you were to do?

A. It was understood it should be clean sand and gravel and English Portland cement.

Q. What was said, if anything, as to the manner of doing it?

A. I had represented we should lay it a regular thickness; in that case two and one-half inches thick.

Q. Was anything said—and, if so, what—as to the nature of the process?

A. No; only I described the way it should be done to them; not in a written proposition, any more than it should be two and one-half inches thick.

Q. Did you do it as you had told them you were going to do it?

258 A. Yes, sir.

Q. Were you present in Milwaukee at the time the work was done?

A. Yes, sir; I was there every week.

Q. Was it done by persons under your employ and directions?

A. Yes, sir.

Q. Beginning, if you please, at the work at the malt house, on the several floors, state how that work was done.

A. We had timbers two inches or more in thickness.

Q. And what did you do with the timbers?

A. In laying the first section or strip we would place two timbers off about four feet—they usually lay from four to four and a half feet—in width across one side or length of the building, and from that timber we place another four or four and one-half feet from it, so that in laying the first section we can rest our straight edge over the two timbers in order to make the first section level, as there would be no rest for the straight edge next to the wall. The wall would be on one side and the timber—two and one-half inch timber—would be on the other.

Q. A line of timber ran across the room?

A. Lengthwise.

Q. And these two lines would be laid four or five feet apart and parallel to each other?

A. Yes, sir; we only filled the next one to the wall, filling in between the wall and the line of timber nearest to the wall first; then we moved the timber.

Q. After doing that?

A. After that we filled with the coarser material and rammed it

down with wooden or iron rammers made from eight to
259 fifteen pound weight—compact it—so after being compacted the lower strata would be some half inch or less below the top of the timber. We immediately follow that with a finer coat. It may follow in a minute—the man that is ramming. It is all done at once—that is, struck off with a straight edge over the timbers.

Q. Is this upper coat so soft as to be shoveled?

A. We handle it with a shovel in a plastic state; it is about the consistency of thin mortar used by plasterers.

Q. And it is so nearly liquid it will settle down as you put it in?

A. Somewhat; but we strike it off immediately.

Q. In order to level it?

A. Yes, sir; we level it to the hight of the timber.

Q. When you have got the first section, which, I understand you, runs across or lengthwise the whole length or width of the room and is about four or five feet wide, finished, what do you do next?

A. We remove the timber which surrounds the outer edge of this first section, leaving the second timber to strike off a level against.

Q. When you have removed the first line of scantling that leaves a vacant strip four or five feet wide between the completed floor and and the second line of scantling, does not it?

A. Yes, sir.

Q. Then what did you do?

A. The first move, then, is to break down the edge of the work in laying floor-work; it is usually done with a shovel going along and cutting it down irregularly.

Q. For what purpose?

A. So that the material in the next section will act and combine with the first.

260 Q. Is it your object, then, to lay these pieces in a solid mass, or lay them in sections that shall lie on the floor separate from each other?

A. To lay them in a solid mass; we would strictly avoid having it otherwise, if possible—that is, we avoid having any joints or cracks whatever.

Q. What is the particular reason for avoiding joints or cracks in these floors?

A. For the benefit of the business of malting; those floors were laid for the purpose of malting. It would be desirable to have them as nearly air and water tight as possible. If it had leaked the water would have been taken from the grain, and it would injure it.

Q. You were therefore very desirous to avoid all cracks and leaks in this floor?

A. Yes, sir; we were very particular.

Q. After having broken down the edge in the manner you speak of what did you do next?

A. We filled the places between the timber and the finished work in a similar manner to the first, ramming and striking off as before.

Q. Does this process of ramming down the material placed upon the bare floor crowd and press that material into the completed pavement?

A. It does.

Q. And when you put on that upper coat do you do anything at this joint or line of the frame-work; and, if so, what do you do?

A. No; we do nothing, only spread the material about it and over it with the straight edge, filling any joints, and in finishing with the smooth trowel we smooth over the two as we work, it
261 being in a soft stage; still we can smooth it, perhaps, after not lying more than an hour or two.

Q. You speak of using a smoothing trowel. How do you use that—flat, level, or edgewise?

A. We could use it no other way than flat without being injurious to the work. It is a regular plasterer's fine trowel—steel trowel.

Q. You use it in the same way a plasterer does to smooth over the work?

A. Yes, sir.

Q. When you have finished as many sections as you can do in a day do you break down the last section done during the day?

A. Not always. We usually leave that with a square face, although in cold weather I have had it broken down in a house that was done in Peoria—in the winter time, particularly.

Q. What is the reason for the difference in your actions?

A. The reason for leaving it is to have a square surface to commence again in the morning. Setting so much over night we could not rub the two together; we could not finish the older work again.

Q. If you can do all of the work on one floor in any one day is it your preference and practice to do so?

A. It would be; yes, sir.

Q. You wish, then, to avoid rather than to leave these joints?

A. Yes, sir.

Q. The floors, then, in Milwaukee were made according to this process and with these objects in view, were they?

A. Every one that I had anything to do with.

262 Q. Which floors are these in the defendant's buildings or property?

A. All the floors in the house called the malt house, on the north side of the street from their office—in the corner building there.

Q. When was that work done?

A. Two years ago. It was commenced two years ago the first of last May, in the malt house.

Q. Did they have any other work of that kind done after that that you know of?

A. Yes, sir; we put down a floor in their office building.

Q. Was that done in the same fashion?

A. Precisely the same as in the malt house.

Q. What else?

A. We done the footwalk in front of their office—sidewalk.

Q. Any other work?

A. There was a small piece of work put around the fountain in the president's yard, near his house.

Q. Any other?

A. I believe that was all that was done. We done the floor on

the ground in the kiln-room, which would be the continuance of the ground floor in the malt house—north end of the malt house.

Q. How was the sidewalk laid?

A. That was what we call ornamental work; in colors.

Q. Meaning by that what?

A. It was laid in sections showing two colors alternating and the blocks diamond-shaped. The blocks were not diamond, but they were what we call diamond-shaped pavement.

Q. They were squares, then, with the angles diagonally
263 opposite, laid lengthwise with the sidewalk?

A. Yes, sir; or lengthwise with the street and building.

Q. According to the plan of this model that is shown us here?

A. Yes, sir.

Q. In white and black, or nearly black?

A. Yes, sir.

Q. How were those laid?

A. They were laid by having what you call a zigzag frame corresponding to the line.

Q. Was that frame of one piece of wood?

A. No, sir; it was made up different from that; it was made of different pieces, although of that shape and style.

Q. Fastened together in this form?

A. Yes, sir.

Q. About how many angles were there—interior angles—in each frame?

A. Three, I think, in that side; that would make a 12-foot frame; those blocks, as I recollect, are four-feet blocks, not four feet square, but four feet diagonally—four feet from point to point. We use what we call right and left frames, as we always do; this would only represent the right frame.

Q. You mean this model marked B, here?

A. Yes, sir; would represent only half of the frame to do the work, but a similar one beveled the other way would be used when this is drawn out to form the other side of the block.

Q. These frames are used for what purpose?

A. They are used for holding the material in proper line and place, here, so as to form the desired block.

Q. Beginning at the end of the sidewalk the blocks that you would first make are of what shape?

264 A. They are what we call the half block.

Q. Triangles?

A. Yes, sir; V-shaped.

Q. Are the sides of those beveled or are they perpendicular?

A. The front sides are beveled.

Q. The back or base of the triangle rests against the board at the end of the sidewalk?

A. We begin next to the building and work towards the street; that line would be the inner line of the sidewalk or the wall of the house or fence.

Q. The next course of blocks would be of what shape?

A. Squares.

A. The angles of this frame—that is, the exterior angles of this frame—rest against what, touch what, when you came to lay this—to lay a second course of blocks; against what do the exterior angles of this frame rest?

A. Against the points of the work finished.

Q. That would leave vacant squares?

A. Yes, sir.

Q. What do you do then?

A. After being properly placed we fill the squares with material in the same manner we did the floor between the scantling and the wall.

Q. Why are these sides of the frame and the sides of these several blocks made with sloping edges?

A. In order to make what we call beveled blocks, so it can settle or rise up by the foundation moving by frost or other elements.

Q. When they are so made can these blocks be withdrawn one at a time from the pavement without injuring it?

265 A. No, sir; not at all.

Q. The object and effect, then, is to hold the blocks down to one level?

A. To keep a level surface—yes, sir. They would not become uneven or displaced. When the frost is gone away in the spring it would settle to a uniform surface again.

Q. Do you know whose invention that process is?

A. Yes, sir.

Q. Whose?

A. My own, J. B. Hurlbut's.

Q. Is it protected by patent, as you understand?

A. Yes, sir.

Q. Do you know the number or description of the patent?

A. It was issued the 20th of April, if I remember, in 1875. (Shows witness paper.)

Q. Look at this copy of the affidavit you saw yesterday to see if you can give me the number of the patent.

A. Yes, sir; I think this is the number, 162,172, issued April 20th, 1875.

Q. In this process of laying these blocks do you put any sort of material—tar paper or other foreign material—between the blocks as you lay them?

A. No, sir.

Q. Is it your object in forming these to keep the blocks entirely separate from each other, so they may be moved one from the side of the other, or to join them together into one solid mass?

A. To make them as nearly solid as possible. They would adhere more or less at first, when the material is fresh, before setting

266 and contraction takes place, as in some instances where there is material, where the second block is laid a very few minutes after the first, it would be so nearly alike that in some instances they don't separate; probably not one in three hundred; it would only be where we follow the second block immediately, two or three minutes after the first.

Q. The first block begins, as a matter of fact, to set very rapidly?

A. Just as soon as there is water put to it. We have to use English Portland cement. After being mixed and wet it has to be put in place immediately. In the space of half an hour it would be worthless, after water had been put to it.

Q. Why do not you break down the edges of these blocks in the sidewalks as you did the edges of the sections in the malt house?

A. We wish to keep uniform patterns in laying the sidewalk. If we were to break down the edges it would be impossible to keep the lines straight in the design.

Q. Why do you want them straight?

A. Merely for ornamental appearance and uniform size.

Q. These blocks are made of different colors, I believe?

A. Yes, sir.

Q. Why is that? Is that for the purpose of adding to the utility of the sidewalk or merely for ornament?

A. It is for ornament only; one color would be supposed to be as strong as the other.

Q. What tools or instruments do you use in the manufacture of the sidewalk?

A. Precisely the same tools that we do in laying the floors, with the addition of what we call a straight edge or parting strip
267 to lay on top of the block, what we call a straight edge with a notch in it to strike off.

Q. And also this zigzag frame?

A. The zigzag frame used in the pavement blocks corresponds to the straight scantling used on the floors.

Q. I don't know whether I asked you—do you place any foreign material or substance, strips or anything else, between these blocks when you are forming them?

A. No, sir; none at all.

Q. Any tins, steels, tar paper, or other thing?

A. No, sir.

Q. Is it your object to form those blocks so that they shall remain separate, or that, so far as possible, they shall unify and solidify?

A. We would have them remain solid, if possible—as near as may be. Experience teaches us it will not remain so after a time.

Q. You find that laying the materials a little time apart prevents them from setting into one mass, as a general thing?

A. Yes, sir; or, rather, they will after a time—a month, two months, or three months—show a line of separation which it would not do, perhaps, for the first few days at all.

Q. Do you recognize the materials or tools and models of tools here present, marked A, B, C, and D?

A. Yes, sir.

Q. What is the article marked "C?"

A. Merely a foundation for making a model of the work.

Q. The floor underneath?

A. That would represent the ground.

268 Q. These strips fastened to the edges of this floor around represent what?

A. It might represent the house line, fence line, street line, or curb.

Q. The blocks with the beveled edges represent the actual blocks, only they are smaller?

A. These blocks are smaller.

Q. The frame B—is that a true imitation, on a smaller size, of the frame you use?

A. Yes, sir; of one-half—that is, for the right-hand frame. The bevel on the other side would bevel under—a reverse frame that would run under so this would not rise. This block would represent the block. It is so thin you would not notice it.

Q. It is wider on the top than on the bottom?

A. Right the reverse. It is longer on the bottom than it is on the top, and it could not raise.

Q. Then one block may be set wider at the bottom?

A. In one direction it is wider and in the other it is narrower.

Q. At the bottom?

A. Yes, sir.

Q. So that each block is held by what you may call the two ends and not the two sides?

A. Yes, sir.

Q. In other words, the block would be square on the top and not square on the bottom?

A. Yes, sir.

Q. Tell me, what do these six bits of rubber with diagonal ends here present and accompanying this model of the pavement represent?

269 A. It represents what we call the parting strip, and that a straight edge.

Q. Is that a real parting strip of such size as you use here?

A. Yes, sir; I recognize that as one that has been used in our work, marked Exhibit "A."

Q. That is just such as you actually use?

A. Yes, sir; that has been in work two or three years.

Q. This is made of wood, apparently, with a strip of rubber laid onto it on one edge?

A. Yes, sir.

Q. And how is this used in your manufacture?

A. It is laid along the line of the block last made.

Q. With the rubber at the edge of the last block?

A. Yes, sir.

Q. The flat pieces of iron projecting over it and outwards by the side of it?

A. No, sir; pressing back into it.

Q. Into the block last made?

A. Certainly, as you see there; it would project a sixteenth of an inch, which would be a detriment to the work. As you see, it is laid in on the line of the work, and this line must correspond with the line of the work.

Q. You mean the line of the parting strip must correspond exactly with the line of the finished cement blocks?

A. Yes, sir; not in the joint, but to the side of the joint.

Q. Pressed back from the joint?

A. Yes, sir.

Q. So the outer side of them is flush with the edge of the block?

A. Yes, sir.

270 Q. What are those parting strips for?

A. They are to protect the work already finished; also the rubber on the bottom is to prevent the colors, when in a soft state, from intermingling and running together.

Q. Is the rubber on the bottom pressed down into the surface of the completed block?

A. Onto the surface, but not into it.

Q. And the object of these iron strips fastened upon the edge is what?

A. Merely to hold it in place from slipping back; they would have the same result, and I have found it better to put them on the back side; it is not necessary; in fact, we worked two or three seasons without using them much—just the plain strip, without those hooks—just put a weight on them.

Q. Was there any purpose or object to leave, by means of those hooks, a hole at the line of the junction of the blocks?

A. It would show a mark when it is withdrawn. As we run the trowel over the joint it closes. When I buy them I call for about 25 to 30 to the inch, 25th of an inch in thickness, so they would not mar the block much.

Q. You do not design to make or to leave holes, but rather to fill those all up?

A. When the work is finished it shows no place; it is closed by pressing the work together.

Q. What is the difference between the work done by you in the way you have described and the work done under the Schillinger patent, as you understand it?

Objected to as improper and incompetent.

271 A. As I superintended under that patent one season for several months, I had a chance to know there is quite a difference.

Q. When was that?

A. In the year 1873, from June until some time in October.

Q. By whom were you directly engaged?

A. J. D. Decreet was their manager and I took his place. I was not employed by either of the partners of the Schillinger Company, but took his place.

Q. Did you do much work there that season for them?

A. I looked after the work, supplying the gangs with material, contracting for work, measuring work, keeping the accounts at the office.

Q. Did you see how it was done?

A. Yes, sir.

Q. So, are you or are you not familiar with the process of the work under that patent?

A. I am familiar with it; yes, sir.

Q. Just state, if you please, how that was done.

A. They used zigzag frames, quite a similar one in laying this ornamental work, except they were square edges, not beveled, and after completing one row of blocks or sections they immediately put in, next to the work finished, a strip of tar paper projecting downwards to somewheres near the depth of the work and above the work an inch or more.

Q. Thus separating the blocks from each other?

A. Yes, sir.

Recess to 2 p. m.

2 P. M.

Examination of Mr. HURLBUT resumed by Mr. SMITH:

272 Q. Returning to the question of the exhibits presented here, what does this piece of wood marked D represent?

A. What we call a straight edge for striking off the surface of the block—leveling it.

Q. What is the notch at the end for?

A. That corresponds with the thickness of what we call the parting strip running on top of the work.

Q. And allows the end of the straight edge to pass over the parting strip without raising the upper part of the straight edge above the level of the blocks?

A. Yes, sir; that is designed to do that.

Q. In passing the straight edge over the fresh material with the notch moving over the parting strip, what does the other end of the straight edge rest upon?

A. Upon the forming frame or scantling.

Q. Did you become, in the time that you worked for Schillinger Company, familiar with their process and their claims?

A. Yes, sir.

Q. Were you at work with or under Jenkins and Selby?

A. I was engaged by that company through J. D. Decreet. Jenkins and Selby were what constituted the company.

Q. Do you remember their calling it "Schillinger Artificial Stone Company," operating here in Chicago?

A. Yes, sir.

Q. What other difference, if any, was there between their processes and those you now use?

A. The paper was left in the joint, and after the work became hard it was necessary to send a workman to trim the paper down to the level of the surface of the walk.

Q. What were the claims then made by the company?

273 What rights and processes did they claim as owned by themselves or secured to them by patent?

Objected to as incompetent and immaterial.

A. They claim the paper strip between the blocks for separating the blocks—claimed it made a water-tight joint, and that a block

laid in that manner, having square edges, could be raised and lowered without injury to the adjoining blocks, in case one wanted to be renewed.

Q. Do you know whether that object, of taking out a single block from the pavement, was kept in view by that company and its agents in the process of manufacturing the pavement?

A. That was the aim; I do not think it was followed closely. It proved it was difficult to do without injury. It proved difficult to do, to take out the block without injury to the adjoining blocks.

Q. Do you know whether Jenkins and Selby laid pavement, also, upon other plans and by other processes than those patented by the Schillinger?

A. Yes, sir.

Objected to as irrelevant and immaterial.

Q. What was the difference between the process they used when operating under the patent and that used by them when operating without reference to the patent, independently?

A. They put down floor-work in different places in the same manner we do it, except they left the edge square when putting down work in one color.

Q. Do you know whether they accounted to Schillinger and paid royalty upon that work, which they did without the use of tar paper or other material between blocks?

274 Objected to as improper, incompetent, and immaterial and irrelevant.

A. Yes, sir; I believe—I know they did not pay royalty on work made plain. I was instructed to keep separate measurement of work where they didn't put anything in the joints. Decreet told me they were not expected to pay royalty on such.

Q. Were there any other persons representing that company or doing work under the Schillinger patent in Chicago at that time?

A. Not that I know of.

Q. Do you know whether they were agents of the plaintiff, Schillinger, at that time?

A. So far as I know, they were claiming to be using the name and brand.

Q. Did they openly and notoriously use the name?

A. Yes, sir; they used the name.

Q. Was one of those two persons Dr. J. B. Selby, of Milwaukee?

A. Yes, sir.

Q. Do you know the name of Mr. Jenkins?

A. I believe it is Charles E. Jenkins.

Q. Do you know whether he formerly resided in Milwaukee?

A. I don't, no further than he was said to be from Milwaukee, before I knew him.

Q. Have you ever employed the tar paper or other material to put between blocks, except as you were authorized to do so directly by the plaintiffs in this suit?

A. No, sir.

275 Q. Have you ever used the tar paper or other material placed between the blocks since leaving their employment and the employment of Jenkins and Selby?

A. In superintending work for Perkins and Stevenson for two or three months at one time a year after I was connected with the Schillinger Company, they used or brought on the ground for us to use a steel strip to insert in the place of paper, removing it when the blocks were finished and closing up the joint after taking it out.

Q. Since that time how has it been?

A. I never used anything in the joint.

Q. What year did you last use anything between the blocks?

A. In the year 1874 for Perkins and Stevenson.

Q. Are you now at work for yourself or for some company or individual?

A. We have been incorporated recently.

Q. You are at work for a corporation in which you are interested?

A. Yes, sir.

Q. The name is what?

A. Portland Cement Paving Company, Chicago.

Q. Did the use of the Schillinger process leave tight joints between the blocks or open joints?

A. They were closed up against the tar paper.

Q. What object do you keep in view as to joints in laying block or other pavement?

A. To manufacture or lay one block close as may be to the other as close as possible.

Q. To leave joints or leave no joints?

A. To leave no openings.

276 Q. Was that your plan and intention in the laying of the work you have referred to in Milwaukee?

A. Yes, sir; it was.

Cross-examined:

Cr. Q. Are you the J. B. Hurlbut, defendant, in the suit of Schillinger against J. B. Hurlbut?

A. Yes, sir.

Cr. Q. And you are defendant in the same case in which the injunction was argued before Judge Blodgett yesterday?

A. Yes, sir.

Cr. Q. And you did this work in Milwaukee for the Phillip Best Brewing Co.?

A. Yes, sir; contracted to do it.

Cr. Q. And you agreed to protect the Phillip Best Brewing Company against the charge of infringement in this case?

A. Nothing said about it.

Cr. Q. Has there anything been said since the commencement of this suit?

A. No, sir.

Cr. Q. Nothing whatever?

A. No, sir.

Cr. Q. Did you authorize the publication in a Milwaukee paper

of a statement that you would defend the parties in Milwaukee for whom you should work?

A. Yes, sir.

Cr. Q. And the same witnesses are produced here whose affidavits were used in the injunction motion yesterday?

A. Some of them; yes, sir.

Cr. Q. And the same exhibits or some of them are produced here that were used yesterday?

A. Yes, sir.

277 Cr. Q. How long did you say you have been engaged in this concrete pavement work. You represented the Schillinger patent in June, 1873, first, and with that company you first learned in relation to this concrete pavement work?

A. Yes, sir; I had seen it laid considerable the year before, and was conversant with the manner it was laid in Chicago.

Cr. Q. But your first personal acquaintance with it dates with your commencement with the Schillinger Company?

A. Yes, sir.

Cr. Q. Subsequently you were connected with Perkins and Stevenson?

A. For a short time; not to exceed three months.

Cr. Q. Then you started business for yourself?

A. Yes, sir; business in which I was interested.

Cr. Q. Under the name of the Portland Cement Paving Company?

A. Yes, sir.

Cr. Q. Who composed that company besides yourself?

A. In the first place it was to have been Phillip Wadsworth, although there was nothing printed, but being a dealer in cement he finally substituted William P. Dickenson, who was connected with their house indirectly.

Cr. Q. Was it an ordinary firm partnership?

A. That is what it resulted in; at the start it was to be incorporated, but it was not until now.

Cr. Q. Since when has it been incorporated?

A. The papers have been returned from Springfield recently.

Cr. Q. Who constitute the company now?

278 A. J. B. Hurlbut, D. N. Hurlbut, and George R. Knowlton.

Cr. Q. When were the articles of incorporation filed?

A. Some two months ago, or about two months, I should judge—or six weeks.

Cr. Q. When did Dickenson's connection with the company cease?

A. I think in the month of July, 1875.

Cr. Q. From July, 1875, up to the time you sent the articles of incorporation to Springfield who was connected with the company beside yourself?

A. My brother, indirectly—that is, he had some means in it—my two brothers and myself.

Cr. Q. The business of the company was the laying of this cement work?

A. Yes, sir.

Cr. Q. And, as I understand you, you laid two classes of sidewalk—pavements?

A. Different styles and colors.

Cr. Q. You laid what are termed flags, and also diamond blocks in colors?

A. Yes, sir—flags; three years ago this fall.

Cr. Q. Please describe how you laid the flags.

A. The same way as the malt floor, except we kept the joints up full, and sometimes compressed the line of that joint by a V-shaped strip—bore it down the 16th of an inch or so—a piece of board brought to an edge, and just the edge depressed down in the work, showing a line.

Cr. Q. Is that pressed along the straight edge, or is it of sufficient width to extend across the flag and find the place of the union of the two blocks, and then sunk in the 16th part of an inch?

279 A. We sometimes laid a straight edge across and pricked where we wanted to lay it. In some instances we draw a line right across and run a trowel over it.

Cr. Q. That alone suffices to make a joint line?

A. Yes, sir; when it is new it would show right away it was intended to be blocked off. It has no other purpose.

Cr. Q. When the blocks separate the cracking follows that line?

A. It would if we put this line over the place where the scantling is removed; if it is a quarter of an inch away it will not.

Cr. Q. Do you bring it right over where the timber is withdrawn?

A. Yes, sir; where the timber is removed from.

Cr. Q. The cracking follows the line?

A. It follows where the material was parted on the fresh line that controls the cracking, whether there is any mark on the surface or not.

Cr. Q. If there is a mark on the surface you always secure a true and accurate joint where the cracking takes place?

A. The line has nothing to do with the cracking.

Cr. Q. As a general thing, you make the line directly over the separation?

A. We have done it that way and without any. I prefer not to make any.

Cr. Q. But I understand you to say you didn't make, generally, this line directly over the place where the scantling is removed.

A. Our endeavor is to make it over, but if the workmen do not get it exactly, then it shows a mark line and a shrinkage joint.

280 Cr. Q. Did you see the pavement made for Hill, corner of Chicago and Dearborn avenue?

A. Yes, sir.

Cr. Q. Was that pavement laid by your company?

A. Yes, sir.

Cr. Q. In that pavement the joint is marked?

A. By a line drawn across and pressed down.

Cr. Q. That line was made directly over where the joint was?

A. Yes, sir.

Cr. Q. It was, as a matter of fact, made so?
A. Yes, sir; as nearly as may be.
Cr. Q. Have you examined that pavement since it was laid?
A. No, sir; not particularly.
Cr. Q. When did you see it last?
A. Not since it was laid.
Cr. Q. In October?
A. Yes, sir.
Cr. Q. You laid a pavement like that in Milwaukee, on the premises of Best Brewing Company?
A. No, sir; I don't know as it was like that.
Cr. Q. I mean the pavement around the fountain?
A. I think that was depressed with a V-shaped strip. That is my recollection.
Cr. Q. Was not that the way this pavement on Chicago and Dearborn avenues was made?
A. No, sir; there was a little cord drawn across, and a trowel run over it to press it down.
— Q. In the Milwaukee pavement the line was made by the V strip, then?
281 A. I think it may have been; I know we used it at different times.
Cr. Q. You are satisfied there was a line of some kind made there?
A. Yes, sir; I believe there was, to the best of my recollection.
Cr. Q. Who was that worked for?
A. For—Capt. Pabst ordered it.
Cr. Q. For the brewing company?
A. I cannot remember whether there was a separate bill made for it or not; I think they kept the account separate; I may not have been paid separate.
Cr. Q. Were you paid by the Best Brewing Company for that work?
A. I presume I was.
Cr. Q. State your best recollection.
A. I do not remember whether there was a separate bill made or not; my best recollection is the book-keeper or secretary took the time it amounted to and kept it separate, as I remember, but in paying me I think they gave me a check for all.
Cr. Q. Of the Phillip Best Brewing Company?
A. Yes, sir.
Cr. Q. Who did you make your contract with in doing the work for Phillip Best Brewing Company?
A. Capt. Pabst.
Cr. Q. The same one you did this other work for around the fountain?
A. Yes, sir; the proposal was accepted in the name of the Phillip Best Brewing Company.
Cr. Q. But the negotiations were had with Pabst.
282 A. Yes, sir; he contracted for that around the fountain afterwards, at a different price.

Cr. Q. Take that fountain, and commence from the beginning and describe how that pavement was laid.

Objected to as irrelevant.

A. My recollection is Pabst had his carpenter place some timber around it, the width of the walk from the curb of the fountain—straight pieces running parallel with the straight sides of the fountain—the space may be three or four feet wide—and we put across scantling as we filled the work along, four feet or more, and kept marks where those scantling were removed from. We proceeded to move the timbers back and fill until it was all completed. Then this V-shaped marker was pressed into the line where the timbers were removed from to the width of a 32nd or 16th of an inch, for about an eighth of an inch to a 16th of an inch deep; pressed the material down instead of separating it.

Cr. Q. The lower course of that walk was composed of sand, gravel, and cement?

A. Yes, sir.

Cr. Q. Mixed about one to seven?

A. Yes, sir.

Cr. Q. One part of cement and seven parts of the other?

A. Something like that. It may be one to six.

Cr. Q. And that was filled in the mold and then tamped down compactly?

A. Yes, sir.

Cr. Q. Then the upper course, a half an inch thick, was floated on top?

283 A. Yes, sir.

Cr. Q. That was composed of half cement, half sand, and water to make it plastic?

A. Yes, sir.

Cr. Q. Then it was smoothed over with a surface float or straight edge?

A. Yes, sir.

Cr. Q. And when partly set the long scantling was removed to the size of the next block?

A. Yes, sir.

Cr. Q. And that was made in the same way?

A. Yes, sir.

Cr. Q. Now, you spoke of a tamp or rammer?

A. Yes, sir.

Cr. Q. That was an implement by which this stuff was tamped down?

A. Yes, sir.

Cr. Q. Suppose that this V block here marked B is the edge of the completed block?

A. Yes, sir.

Cr. Q. The rammer is compacted all through the mold?

A. Yes, sir.

Cr. Q. And along this line?

A. Yes, sir.

Cr. Q. Of the completed block?

A. Yes, sir.

Cr. Q. Until it is levelled up to the same thickness of the coarse material in the completed block?

A. Yes, sir.

Cr. Q. Then the fine material is floated in and smoothed the same way; then this tuck-creaser or bevel, you say, is run across the line?

284 A. No, sir.

Cr. Q. Depressed into where the scantling was removed from?

A. Yes, sir.

Cr. Q. How thick do you say the upper course was?

A. It may have been an inch. That is finished against the timber, before it is removed.

Cr. Q. The lower course of this material is the coarse stuff you have described with a small quantity of cement in it?

A. Yes, sir.

Cr. Q. Have you ever seen any of that removed from the sidewalk?

A. I have seen it—not there.

Cr. Q. In another place?

A. Yes, sir.

Cr. Q. In what condition was that lower strata of material?

Objected to as immaterial.

A. It was set together very strong, usually.

Cr. Q. But experience shows that along the joint here, or where the two blocks come together, that that is the weakest place in the block anywhere; if any cracking takes place it will usually come in the joint instead of the middle of the block?

A. It spreads there from the contraction.

Cr. Q. And the separation extends up through the fine upper course?

A. The upper course is parted in the same way. One sets before the other is the reason it does not adhere.

Cr. Q. You say there was a footwalk made in front of the office of the Best Brewing Company?

285 A. Yes, sir.

Cr. Q. And that was in what you term diamond work—ornamental work?

A. Yes, sir.

Cr. Q. Have you examined that footwalk since it was laid?

A. I have passed over it a number of times.

Cr. Q. Do you know the condition of it at present or when you saw it last?

A. Yes, sir; pretty well.

Cr. Q. Were the blocks separated at the top there?

A. Yes, sir; they show the line.

Cr. Q. Joint line?

A. Yes, sir.

Cr. Q. And I understand you to testify on your direct examination that only in one case out of three hundred did they separate?

A. It is very rare. They don't separate only when laid at the same moment.

Cr. Q. It is not the intention, when laying these diamond blocks, to lay them at the same moment?

A. No, sir; it is impossible.

Cr. Q. As a matter of fact, the success of these walks is due, in a great measure, to the separation of the blocks?

A. It may be termed so.

Cr. Q. Has not experience in the use of cement walks demonstrated that clearly as a fact?

A. Yes, sir. If you wanted to lay a walk a mile and a half long you would not expect to keep it together without a break.

Cr. Q. You would not want to lay one a quarter of a mile long, either?

286 A. No, sir.

Cr. Q. If a slight tendency only is given in the formation of these blocks to control the separation on the line where the blocks are united or weakened, such tendency will usually control the cracking, will it not?

A. I don't know as I understand the question. No; it won't control it at all—no mark or cutting to the depth of a half an inch. It will come exactly on the line where the timber is used. The lower course being made of gravel, and that being parted on a straight line and not interlocked, as in the main body of the work, the contraction is sure to come on that line. If you make this little mark on the surface a quarter of an inch on the one side of that line it will show two joints. I was not speaking of making a mark directly over where the timber was removed. If we make the mark a little to one side the mark will have nothing to do with or control the cracking; there will be two apparent joints or two mark joints—two lines. One would be a separation and the other would not. The mark would be no separation.

Cr. Q. What do you make the mark for?

A. To show, for the time being, it was an imitation of stone. It is of no benefit and is not so good. We make no mark in about nine-tenths of all the work. It has been colored work, and we never have made any mark on that work. Workmen many times like to have the work show the imitation of flag, and they make that mark and make it over the line of where they move the timber back. It is not a necessity.

Cr. Q. Then, I understand you, "A" is one of the regular parting strips which you use in practice?

287 A. Yes, sir; we give it the name of parting strips—parting colors. It is used on the surface of the block.

Cr. Q. Your foreman, Miller, testifies that on some of your parting strips the projecting hooks projected to the extent of an inch. Is that so?

A. I don't know what he testified to.

Cr. Q. As a matter of fact, did you use strips?

A. That projected down lower than that?

Cr. Q. Yes, sir.

A. I have ordered those pieces, I think, every time, and used several hundred of them. I have had those pieces, as I remember, an inch or an inch and a quarter square. The projection was just as much this way as that before it was bent to drive in there; consequently that is about a full-length piece. It projects down, we calculate, about three-eighths below the rubber, more or less—three-eighths of an inch.

Cr. Q. In all of the work which you do or did in Milwaukee for the Best Brewing Co. were the same courses of material used—that is, the lower course with the fine upper course, tamped down?

A. Yes, sir.

Cr. Q. Have you examined any of this brewery work since it was done?

A. Yes, sir.

Cr. Q. And do you find that these blocks have separated?

A. I find there is an opening—more particularly where we left off for each day's work—where we left the edge square. We laid no blocks in the brewery.

Cr. Q. Sections?

A. Yes, sir.

288 Cr. Q. Were there also openings on the ends of the sections, too?

A. At the wall.

Cr. Q. I understand these sections were laid right across the room?

A. Yes, sir.

Cr. Q. Were there some end openings, too?

A. They laid from one side of the house to the other; there were no cross-pieces put across during the process of laying it.

Cr. Q. Are you certain?

A. Yes, sir; they would only be in the way. It is possible, where they left off a strip at night, they may have squared it up.

Cr. Q. Were you present all the time that work was going on?

A. No, sir.

Cr. Q. Is your recollection entirely clear?

A. Yes, sir; for I direct it in every case—all the work I have done.

Cr. Q. Were your directions followed out literally?

A. Yes, sir.

Cr. Q. Then is it a mistake when he testifies about there being cross-joints?

Objected to, because it assumes an answer that has not been given.

A. He was mistaken, unless, as I say—it might occur once in three days or once a week—they didn't finish; then it would show a straight line there now where they left off at night.

Cr. Q. How wide was that room?

289 A. 70 feet, more or less.

Cr. Q. How long?

A. The house was over 130 feet, I think.

Cr. Q. Do you remember how many feet of pavement you were paid for in that house?

A. I don't remember exactly what the house measured of itself. Altogether there was seventy thousand feet we done, more or less.

Cr. Q. Can you testify positively that the tamp or rammers were used in the malt-house work?

A. Yes, sir; always in the lower strata.

Cr. Q. In this Phillip Best job?

A. Yes, sir; we never put down any work without using it.

Cr. Q. These little pieces of rubber which are shown here are intended to represent on a small scale this parting strip?

A. Yes, sir.

Cr. Q. The only difference is these pieces of rubber, with this exception, has not any hooks on it?

A. No, sir.

Cr. Q. In this little model here the dark-colored blocks were marked over with lamp black after being cast here?

A. No, sir; I think it was mixed in the material.

Cr. Q. All the way through?

A. No, sir; the top course. I didn't see it made.

Cr. Q. Is this made in more than one course?

A. Each color was made by itself. It shows lines, as all the work does when first finished.

Cr. Q. Are you certain of that?

A. Yes, sir.

290 Cr. Q. And does your work, when finished, look as irregular as this along the line?

A. No, sir; not in laying large work; small parting strips are easily moved in striking off.

Cr. Q. Who made this model?

A. Mr. Miller, I suppose. I ordered him to make one.

Cr. Q. Have you ever seen diamond blocks of your manufacture taken up?

A. Yes, sir.

Cr. Q. Do they come up in a solid block or in separate blocks?

A. Separate blocks, usually.

Cr. Q. And they were separated in colors also, were they not—that is, the white color would come up as a separate block?

A. Yes, sir.

Cr. Q. And the black?

A. Yes, sir.

Cr. Q. Do I understand you, the coloring is only in the top course?

A. That is all.

Cr. Q. That is caused by mixing a little lamp-black with the fine material?

A. Yes, sir.

Cr. Q. When you mark off with a trowel, as stated before, what kind of a trowel do you use—an ordinary brick trowel? You spoke

some time ago about laying a string across and then running a trowel across to depress it in along the line; what kind of a trowel was that?

A. It may be a brick trowel or a smoothing trowel. We used it flat on the line to press the string.

Cr. Q. Did you ever use a brick trowel?

291 A. Yes, sir.

Cr. Q. What is that used for?

A. Sometimes plastering coarse material, leveling it around, getting it ready to tamp. It does not cut much figure in laying cement paving.

Cr. Q. Does it cut any at all?

A. They can get along without using it, and they have, many times, when they forgot to bring it.

Cr. Q. Did they use a brick trowel on the Phillip Best malt-house floor? Can you testify they did not use it for getting a joint in the malt-house floors?

A. I would discharge any man for doing it. I can testify that I never saw it done.

Cr. Q. Can you testify it never was done?

A. No, sir. I never saw it done; it would be an injury to the work. The object is to make it without any lines or joints whatever—in a malt floor and any floor.

Cr. Q. I understand you to say that Portland cement sets, or commences to set, as quick as you put water in it?

A. Yes, sir.

Cr. Q. For that reason you have to work it very quick?

A. We usually get it in place and finish it as soon as may be.

Cr. Q. When you get it in place it commences to set while you are striking off, don't it?

A. Yes, sir; commences to stiffen.

Cr. Q. And as soon as you get it struck off and remove your material from it, it immediately commences to harden from then on?

A. Yes, sir; of course it don't get very hard in one day or in two days—not hard enough to bear the weight of a person at all.

292 It gets hard enough to walk on in three days—sometimes in two days.

Cr. Q. Is this model A a full-sized parting strip, such as you use on actual work?

A. Yes, sir; that is, full size of that size of block. That is one of the very shortest, probably the smallest size we ever laid in frames.

Cr. Q. This is chamfered off—a rabbet formed in it for the reception of this rubber strip?

A. Yes, sir.

Cr. Q. And when this is placed on the work it comes down snug on the edge and forms a bearing?

A. Yes, sir.

Cr. Q. And makes a straight line on the edge?

A. Corresponds with the straight line already made.

Cr. Q. Out of the block already completed?

A. Yes, sir; the work is all the time below this; this has nothing to do with straightening the work.

Cr. Q. That is covered entirely by the mold?

A. Yes, sir; the work itself.

Cr. Q. In other words, the straight edge of the work already formed is covered by the straight edge of the mold?

A. Yes, sir; to bring the work to the right height, and the bearing on the parting strip more essentially.

Cr. Q. And this notch here in the straight edge is cut at sufficient depth to allow the notch to take in the thickness of the parting strip, and become perfectly flush with the frame and the work already formed?

A. Yes, sir; the straight part should rest on the line of the work—different from floor work; we use no notch.

Cr. Q. The other exhibit would probably represent what you use there?

A. Yes, sir.

293 Cr. Q. And on floor-work that takes on the work and on the scantling in this one?

A. Yes, sir; we pay no attention to any joint. The workmen strike across the two sections in finishing it.

Cr. Q. In your diamond blocks, when you remove the parting strips, you press in some of the same material of the top course in the little aperture made by the hooks?

A. We don't press down.

Cr. Q. Do you press together?

A. In bearing upon the work it closes.

Cr. Q. Closes sideways?

A. Yes, sir.

Cr. Q. What is your opinion in regard to that sidewise closing? Does the material adhere?

A. It would adhere to the newer block and not to the other.

Cr. Q. It would separate from the other?

A. The older block having commenced to set, they don't act together.

Cr. Q. Then, practically, so far as the points go, for an inch and one-fourth or one-half in width at each end of the block, to that extent the blocks are separated at the outside?

A. No more separated than they are clear down through. It would be just the same—the line diverges there—it would take the place of the timber.

Cr. Q. As a matter of fact, is the upper course united all the way across and including the place occupied by those points?

A. They touch—the two blocks touch all the way across.

Cr. Q. But this space comes between, all the same?

294 A. That space; the line diverges there. It would help to bind it from cracking, if there was any difference.

Cr. Q. At that point where it diverges there is a separation effected by a sharp instrument, and that is the hook.

A. That don't separate it any more than the stone itself separates

it the entire length; being iron, it would be the same as the material itself to separate it.

Cr. Q. Then there would be no more separation there in that case than there would be if a piece of tin like this was put in and then removed?

A. If the other was immediately shoved up.

Cr. Q. There would be no separation?

A. No.

Cr. Q. As a matter of fact, there would be no more, then, in the method you employed than there was in the method where the tin or steel parting strips were used, provided that the material was immediately shoved up against the completed block?

Objected to.

A. I don't know, really; it goes down a quarter or three-eighths of an inch; it would be different from putting a strip the whole width of the block.

Cr. Q. I do not refer to putting a strip down the whole width of the block. The projection of this piece of tin or flange is about the same height or depth as on your parting strip?

A. Yes, sir.

Cr. Q. Supposing that this parting strip of tin is placed on thiswise and the new block finished up against it, then this is
295 removed and the joint smoothed up as you would do it with your parting strip, what would be the difference then?

A. Nothing material. If it is put up there when it is in a liquid and plastic state, it being against the iron in one case, and the next—second—bearing against the stone, it cuts no figure in the production of the joint. The joint would come there anyway, if there was a square face to the stone.

Cr. Q. So far as practical results are concerned, there would be no substantial difference between the two methods?

A. I say neither would control the cracking.

Cr. Q. That does not answer my question. Would there be, so far as practical results are concerned, any substantial difference between the two methods?

A. No difference, so far as the size of the one corresponds to the other. I don't know as I can figure out to a hair.

Cr. Q. What is your best judgment on it?

Objected to as immaterial.

A. In the one case one sets into the stone—one sets on the line—one would have a tendency to interlock and strengthen, the other would be on a straight line. One would overlap.

Cr. Q. Will you explain to the court just to what extent your parting strip—the projecting hook—would set into the stone?

A. About the thickness of it—25th part of an inch or thereabouts.

Cr. Q. Setting your parting strip now on the corner of your
296 model and run a straight edge along the same, will you please look at it and see how much it varies from getting on the edge.

A. It may be a 20th to a 25th of an inch.

Cr. Q. It may be a 32nd of an inch?

A. I think the steels are about 25 when they are new.

Cr. Q. They are a trifle thinner than an ordinary knife blade?

A. Yes, sir; an ordinary fruit-knife, for instance.

Cr. Q. You say you have examined the foot-walk in front of the Phillip Best Brewing Company's office and find that the blocks have separated at the joints?

A. I did not know that I had answered that question. I have been over it. I was over it shortly after it was done. I don't know whether it is separated or not.

Cr. Q. Are you now testifying that you do not know whether it is separated or not?

A. I thought you meant the fountain. I have noticed that it separates, as it usually does. It can be taken up in blocks if we can get into one edge.

Cr. Q. By commencing at the edge the separate blocks can be removed?

A. Yes, sir; I have in many instances, and relaid them.

Cr. Q. Then, when you want to take out a block to replace and repair it you can do it?

A. No, sir; not out of the center.

Cr. Q. If you begin at the sides you can take it away and then replace it by putting in a new one?

A. Yes, sir; or you could break out a block and put in a new one.

Cr. Q. Without injuring any of the others?

A. If you begin in the center and chisel it out.

297 Cr. Q. I understand you that you have laid work under the Schillinger with tar paper in the joints?

A. Superintended the work. I used to see it laid every day for several months.

Cr. Q. Suppose this model here was filled out with blocks laid under the Schillinger patent, with tar paper between them, and they were freshly laid—you wanted to remove the middle block, how would you do it?

A. I don't think you could do it while it was fresh. The design might be to lay it so it could be done. It might not have been laid accurately enough so it could be done. In that case you would have to chis out the center block if you want to renew it. They contend they can do it, but I have never seen it done.

NOVEMBER 23RD, 1882.

Examination of Mr. HURLBUT resumed (by Mr. HEY):

Cr. Q. Supposing a diamond block pavement is laid under the Schillinger patent and the pavement is, say, two months old, can a block be removed from the center of the pavement without breaking the same?

A. It is possible if the lines are perfect, as described in Schillinger's specifications.

Cr. Q. Would there be any trouble in taking out one of the side blocks or end blocks of the Schillinger pavement?

A. It could be done from the outer edge.

Cr. Q. And I understand you to say that, commencing on the outer edge, your diamond blocks can be removed?

A. Yes, sir; several months after they are laid. It would be difficult at first, when it is new.

298 Cr. Q. When your diamond blocks are laid, the first row laid in the mold are often completed before the adjoining blocks are formed?

A. Yes, sir; the surface is finished.

Cr. Q. And the edge where the frame is withdrawn is straight and quite smooth?

A. Yes.

Cr. Q. And is set compactly together?

A. Yes.

Cr. Q. And in laying what are termed flags the work is done in the same way, substantially?

A. Yes, sir.

Cr. Q. And, with the exception of cutting the edge with a shovel, the floors are laid in the same way?

A. Yes, sir; the cutting with a shovel is merely breaking down the edge. I may state further—I don't know but I did in the commencement—we have laid floors without breaking down the edge by not filling up to the timber into four, six, or ten inches—cutting down the edge. The workmen commenced that way of doing in order to make the material combine. Where we don't fill up to the timber it leaves a ragged edge always to lay up to again.

Cr. Q. You made an affidavit on your own behalf in the injunction proceedings?

A. Yes, sir.

Cr. Q. And does this statement occur in that affidavit: "That in 1874 he invented certain improvements in the method and devices of laying concrete pavements and floors, for which he obtained letters patent No. 162,172, dated April 20th, 1875; that since 1874 all pavements made by him have been made by the use of the devices and by the method or process shown and described in his said pat-

299 ent, and in no other way, in laying diamond block pavements; that in laying square block or imitation of flag pavements and floors he has used scantling and joists for a mold instead of the V-shaped or half molds shown and described in the patent?

A. Yes, sir.

Cr. Q. And were the floors which you laid for the Phillip Best Brewing Company laid in the way stated in the affidavit?

A. Materially laid in the same way, of course.

Cr. Q. As I understand you, from your testimony here, your idea is that concrete in setting shrinks?

A. Yes, sir; it contracts after a time; I cannot tell in what time. In colder weather it would be double or more times than when laid in hot weather, for the reason that in cold weather the material is contracted and in warm weather it expands more or less.

Cr. Q. And the experience which you have had in laying sidewalks convinces you that you are correct in this idea?

A. In what particular idea?

Cr. Q. In regard to shrinking.

A. Yes, sir.

Cr. Q. The effect of the weather, &c.?

A. Yes, sir.

Cr. Q. And such experience enables you, also, to construct your pavement in order to avail yourself of the cracks mentioned and to control the same to the extent of getting a practical and successful pavement?

A. Yes, sir.

Re-examined by Mr. SMITH:

300 R. D. Q. Tell us what the facts are in regard to the fresh cement adhering to the pavement previously laid, so far as you have not explained it.

A. The first coat being laid some half an hour, more or less, before the second block, the first block has already commenced to crystallize and set, and it leaves a much harder surface than the new blocks, of course: the new block being in a plastic state still, it does not adhere to the first strongly. The first block having a comparatively smooth surface—the material being of gravel, and cement enough to fill up the interior—leaves a comparatively smooth surface to the first, all the particles of sand and gravel being parted on a straight line, consequently all the adhering properties would be all that was given to it from the new block laid against it. The old block would not impart much, if any, adhering qualities. The blocks would adhere more or less for some time. The separation may be caused by the ground heaving or frost, or contraction by setting.

R. D. Q. I understood you to say yesterday that you had purchased all this thin sheet iron which is used as hooks on your parting strips?

A. Yes, sir.

R. D. Q. What is the size that you make those?

A. We usually get them an inch and a quarter square, and then bend—turn a lip on one side of three-eighths—and drive into the wood, as shown on the exhibit here marked A.

R. D. Q. That is the ordinary size, is it?

A. Yes, sir; full-size parting strips.

R. D. Q. What did you mean by your answer to Mr. Hey yesterday, that the success of the blocks is due to the separation?

301 A. Experience teaches us there will come a contraction joint on the timber line in time; it may be weeks or months after being laid, although the joint is closed and adheres, more or less, at first. It would be what you would term a solid mass at first in appearance.

R. D. Q. Could that be closed with fresh cement—that crack?

A. What crack?

R. D. Q. You say there is a contraction joint. Do you mean a crack at the line?

A. Afterwards; yes, sir.

R. D. Q. Can that be filled with fresh cement?

A. No, sir; many times it is not the size of a hair; it has the appearance of being larger years afterwards, from chafing the corners.

R. D. Q. But I do not yet understand how the success of the blocks is due to separation. What do you mean by answering affirmatively to Mr. Hey's question of that kind?

A. In laying a long walk it would relieve it from cracking irregularly. In a ground spring or shrinkage it would naturally give out in the weakest place.

R. D. Q. Would not it be better for your business and work if there were no cracking at all?

A. If we could provide against the settling of the ground or heaving or frost.

R. D. Q. But when you lay the floors of a malt-house you expect ordinarily to have something that will not settle, don't you?

A. We do. On the ground floor it is not subject to frost, and, being in the walls of the building, the upper floors would only be subject to the springing of the joists.

R. D. Q. Don't you aim there to have a floor that will
302 not have any joints in it?

A. Yes, sir; supposing it to be a permanent foundation.

R. D. Q. Then you would not say that the success of a floor for a malt-house is due to separation at all, would you?

A. No, sir; not at all. It is an entirely different paving from outside, where it is exposed to the elements.

R. D. Q. The meaning, then, of your remark is that, inasmuch as there must be some cracking on the out-door walks, it is better to have it along the lines—along the timber lines?

A. Yes, sir; or where the timber is removed from.

R. D. Q. What is the object of making these slight impressions, between a 16th and an 8th of an inch in depth, along a so-called flag pavement?

A. It is merely to—at first, when it is first done, it will look like imitation of flag. A pencil mark on the top will answer the same purpose until the shrinkage takes place.

R. D. Q. Has it any connection at all with the cracks that ultimately come?

Objected to as improper and incompetent and calling for a conclusion.

A. Not at all. If the top coat is not parted at all—if it was put on continuous over all the places where the timber is removed, the lower strata being parted two inches by the timber—the cracking would come up through the top course without any cutting or marks. Experience has shown that in a good many instances where they have cut the line—where they have made the mark—out-

side from where the timber is removed one-fourth of an
303 inch or so, the break would come where the timber is removed from, leaving the line at one side an eighth or quarter of an inch or so.

R. D. Q. Does the crack, in fact, follow the mark so made by you in any degree?

A. Not in the least, unless we place the mark directly over.

R. D. Q. Then it don't follow it, I suppose?

Objected to.

A. It follows the line where the timber is removed from, irrespective of any mark.

R. D. Q. You make those marks sometimes, I understand you, with a V-shaped strip?

A. Yes, sir.

R. D. Q. Of metal?

A. No, sir; of wood, usually.

R. D. Q. How deeply is it impressed into the soft pavement?

A. Perhaps a 16th of an inch. (Witness illustrates.) That would be a corner piece. We would make a corner by beveling off each side. It would be something near a square, which would make the line nearly as broad again as deep.

R. D. Q. You speak of sometimes using a piece of twine or string to make the same mark.

A. Yes, sir.

R. D. Q. How large a piece of string or twine is used for that purpose?

A. Less than a 16th of an inch in diameter, a little larger than this string attached to the board C.

Recross-examined:

304 Re-Cr. Q. In finishing these flag pavements it would not be desirable to have a series of marks running across the flags?

A. No.

Re-Cr. Q. Consequently, knowing that these flags will ultimately spread, what is your aim in making that mark there—I mean do you aim, usually, to get it over the line of separation?

A. Yes, sir.

Re-Cr. Q. Now, the indentation in the smooth upper course, when made in the proper place, leaves a smooth joint line after the separation, does it not?

A. It would make a mark line as smooth as made. Of course, in time that line would not be so smooth from wear or chafing.

Re-Cr. Q. And you say the aim is to get this line over the timber line?

A. Yes, sir; in the inner line of the timber, of course.

Re-Cr. Q. In malt-house floors you say there is a shrinkage of the timbers and joints which compose the foundation?

A. Settling, uniformly, perhaps.

Re-Cr. Q. Does that have a tendency to open the joints in the floors?

A. It might in the weaker places, both ways.

Re-Cr. Q. As a matter of fact, does it not have such a tendency?

A. It has a tendency to crack the floors where there is any springing in any way—not in particular lines, as I know of.

Re-Cr. Q. That is about the same as in overhead plastering, isn't it?

305 A. It would have a tendency to crack the floor above the same as cracking the plastering beneath the floor overhead; jarring or a heavy weight falling on it from above, causing vibration.

Re-Cr. Q. As a usual thing in these cement floors the cracking comes along the joint, does it not, or the point where the two sections come together?

A. No; only where we leave off at night—no more apt to—as we make no separation in the floor during what is laid in the day.

Re-examined:

Re-R. D. Q. You do not think of anything else left unexplained?

A. Not that is material, that I know of. We have laid floors without ever filling up to the timber at all, using the timber to strike over the work. We have laid several malt houses in that way. Instead of cutting down we leave the edge raw and rough, place the timber off four or five inches further, and strike off, and not allowing the material to come to the timber. That is really the better way.

Re-R. D. Q. The difference is that in those cases you do not fill the vacant space full up to the edge of the scantling, but leave a space a few inches between the scantling and the fresh material you have laid in there?

A. Yes, sir; we have laid work that way considerably.

Re-R. D. Q. Using the scantling in that case, then, only for a rest for your straight edge?

A. Yes, sir; keep the floor a uniform thickness. Blocks placed several feet apart in place of the scantling would have the same result to rest the straight edge upon.

306 CHARLES ROW, called by defendant, being sworn, testified:

A. I live in Chicago, and have lived here for the last five or six months. Before that I lived in Baltimore and Washington—14 or 15 years in Baltimore and as much as that in Washington.

Q. Have you lived in Europe—Germany?

A. Yes, sir.

Q. Where?

A. Bavaria.

Q. When did you come from Bavaria?

A. In 1850.

Q. How old were you then?

A. 22 years of age.

Q. Are you familiar with the business of laying cement pavement?

A. Yes, sir; they do that work there. I served my apprenticeship at that in Bavaria.

Objected to as improper and incompetent, and all the testimony of this witness is objected to for want of notice in the answer.

Q. What can you tell me about such work done in Bavaria?

A. We have done that work in different places—in Nuremburg and in Munich, Bavaria. The place I could not tell you exactly. Of course at that time I was not the boss; I must go where he sent me.

Q. Did you work in both of those towns?

A. Yes, sir.

Q. Did you do much of this work, and how much?

307 A. Yes, sir; laying pavement and plaster walls just the same as here pretty near. The building must be all plastered; it is done and laid off in blocks on the pavement as well as in the house—on the floors in the houses.

Q. How were the cement floors laid at that time and in those two places in the house?

A. One time in different colors and another time we laid them in large flags—just the same outside on the pavement.

Q. Was the materials cement, sand, and gravel?

A. Sand and gravel; sometimes we mixed them four to one, sometimes five to one, according to the process; another time we take a little more cement; on the top always half and half.

Q. What kind of frames did you use where you laid them in mass and not in square blocks?

A. We had scantling outside according to the width we wanted; then we got a piece of scantling and moved it from one place to the other, the way we were going.

Q. Are you at work at that sort of thing now in Chicago?

A. Yes, sir; here in Chicago; and this last five or six years most in Washington laying tiling; here I done work for myself.

Q. Have you seen work done here by Miller and Hurlbut, the witnesses?

A. No, sir; probably I see it as I walked over it; I didn't notice.

Q. After you laid one course or section of a cement floor in those cases where you did not use the diamond blocks, what did you do next?

308 A. (Witness illustrates.) We have our scantling according to the width; we lay a strip outside, a piece of scantling four or five inches wide; then we strike off with a straight edge.

Q. You strike off the floor you have just been laying with the straight edge?

A. Yes, sir.

Q. Do you make it level?

A. Yes, sir; for instance, I want to make this piece, I strike this off and finish this; then I move this from there this way.

Q. You move the scantling away?

A. Yes, sir; away from there.

Q. Do you move it away so it lies parallel to the scantling as it did before?

A. Yes, sir.

Q. And the width of the section from where it was before?

A. Yes, sir.

Q. That leaves a vacant place?

A. Yes, sir.

Q. What do you do then?

A. Fill it right in again and take my straight edge and rest the straight edge on the block of stone and strike it right off and finish this.

Q. You lay your straight edge one edge on the finished section and the other on the scantling?

A. On the scantling and pass it over the material you have just put in and level it off that way.

Q. Do you press the new material just put in against the old section?

A. Against the other section; yes, sir.

Q. Do you leave the edge of the other section standing up or break it down?

309 A. I fill it right plumb up; then I take a line and line it off so. I mark it off here.

Q. Mark it off with a line just where the scantling was before?

A. Yes, sir.

Q. So as to make a line on the top between the new and the old section?

A. Yes, sir.

Q. What kind of a line?

A. Any kind; sometimes we make a line with a trowel or take a piece of string.

Q. Draw it across?

A. Draw it across.

Q. How deep a line do you make?

A. About an eighth of an inch in depth, and that cracks right off over that line; then there is a joint there, anyhow.

Q. That is the way you did it in Germany?

A. Yes, sir; and that is the way we do here.

Q. Then your process in Germany was the same that you employ here?

A. The very same thing.

Q. What about the work you have done in this country since you came here?

A. In Washington, the cement-work; over in Baltimore I make the malt floors.

Q. What time did you work in Baltimore?

A. I made a malt floor in Baltimore nearly 25 years ago; probably a little longer than 25 years ago.

Q. Have you done any other work in Baltimore?

A. Not this cement-work, except a malt floor. This other work I done in Washington.

310 Q. What work did you do in Washington?
A. Tiling work.
Q. And when did you do that in Washington?
A. About ten or eleven years ago.
Q. Did you do any other work of this kind in the United States?
A. I worked in Philadelphia. Last summer I was in Philadelphia.
Q. The same sort of work?
A. The same sort of work.
Q. Did you do any work in the United States of this kind before ten years ago.
A. No; not before ten years ago, except this malt floor; not any tiling work, except ten or twelve years ago doing some work in Washington, and worked for Schillinger in Washington, too.
Q. Schillinger, this complainant here?
A. Yes, sir; this very same man.
Q. When did you work for Schillinger in Washington?
A. I could not tell; when he got the job around the Capitol, in Washington.
Q. What doing?
A. Laying down this fancy work; the work cut out.
Q. Cement pavement?
A. Yes, sir.
Q. For the Government?
A. Yes, sir.
Q. On the Capitol grounds, at Washington?
A. Yes, sir.
Q. Tell me about when it was.
A. About six or seven years ago; it is a long time ago.
311 Q. That was not in diamond-shaped blocks; in fancy blocks, was it?
A. Yes, sir.
Q. Do you know whether that work was done according to the Schillinger patent or not?
A. No, sir; it was not.
Q. When you did this work in Baltimore and in Washington and Germany did you use any kind of strips to put down between different blocks or sections of the pavement?
A. Yes, sir. (Shows counsel strip.) That is a strip my father had in the old country. I brought them here with me; they are pretty old strips.
Q. These two pieces of tin or other metal are the strips you used in Germany; where did you use these two pieces of metal?
A. In Germany, and used them here.
Q. Your father used them before you?
A. Yes, sir.
Q. Was he in the same business?
A. He was in the same business. He was a mason.
Q. How old are these two pieces?
A. I could not tell you.
Q. How old do you think them to be?

A. Forty or fifty years old.

Q. You have seen them how long?

A. Ever since I worked—as long as I worked, and when I came to this part of the country I brought them along.

Q. Have you seen them 35 years?

A. Longer. My father gave them to me when I was an
312 apprentice, and told me to take them along and to put them between the joints. He showed me first, then he said I must do it.

Q. These are pieces of tin 10 to 14 inches long?

A. Different sizes.

Q. About how wide?

A. About two inches.

Q. Bent over on the edge about a quarter of an inch?

A. A little better than a quarter of an inch.

Q. And they are used how?

A. Just the same as these; for instance, this block is finished—now you go to work and lay a block outside; then we lay the tins around.

Q. These are laid around the finished block?

A. Yes, sir.

Q. Do you lay the broad side, which is about two inches wide, flat down on the finished block?

A. All around—yes, sir. We put our color in—any kind of color—and when the tiling is finished we take it out and press the joint against the other stone, which shuts the joint up.

Q. What is the use of those tins?

A. They are used to keep that stone, what is finished, clean from the other color, so no other color comes on that stone.

Q. It is not, then, so as to keep the stones apart?

A. Yes, sir; the stones too.

Q. Did you use such tins as those, or did you use these tins in Baltimore, Washington, or Philadelphia, when you were making floors all of one color?

A. No.

Q. When you were making floors all of one color did you put anything between the joints?

313 A. No, sir.

Q. When you made your malt-house floor in Baltimore and when you laid your floors in Germany did you try to keep those sections or blocks separate, or did you try to have them all in one solid mass?

A. All in one solid mass—white floor, especially. They have no joints except where we close in the evening and go off, then we leave the scantling, go and work on it the next day and press on it; that joint be open. If it don't open right away it will in a couple of months.

Q. Where you finished your work in the evening there always would be a joint?

A. Always would be a joint.

Q. But you could do your work along during the day so there would not be much of a joint?

A. Yes, sir.

Q. Have you seen work done under the Schillinger patent, with tar paper or other material put in between the blocks?

A. I seen it and done it myself for Schillinger.

Q. Did Schillinger, the complainant, show you how to do that kind of work?

A. Yes, sir; he told me you must not leave the tar paper out. Except in the Capitol, at Washington, we didn't use any tar paper.

Q. When you speak of the work on the Capitol you mean on the grounds of the Capitol?

A. Yes, sir; outside. We did not use any tar paper there.

Q. That was laid in blocks of fancy shapes?

A. Yes, sir.

Q. Did Schillinger tell you what the tar paper was for
314 that he wanted you to use?

A. Yes, sir; he says: "You must use when you work—I don't care where I send you, you have to use my patent; that is my patent."

Q. When he said "my patent," what did he show you?

A. The paper; he always carried the paper along.

Q. How long did you use that tar paper as he directed?

A. Nearly all the time; so long as I worked for him.

Q. About how long?

A. I worked one season in tar paper. The next season we worked on the Capitol grounds and didn't use any there.

Q. Did you work for him more than two seasons?

A. No, sir; only two seasons.

Q. Did Schillinger tell you, at that time, what the good of the tar paper was?

A. He says to keep the blocks separate.

Q. About what year was that, can you tell me, that you used the tar paper?

A. No, sir; I could not tell you what year it was.

Q. Was it four or six years ago?

A. Yes; eight or nine years ago.

Q. Do you know how long it was before you did that work that he got that patent?

A. No, I didn't know anything about the patent at that time, anyhow. I met him and told him "that is an old thing, this cement-work that has come out again," and then I heard Schillinger had a patent out.

Q. When you laid your block pavements in Germany did you put any tar paper or anything of that kind between the blocks?

315 A. No, sir.

Q. When you worked for Schillinger did you pull out the tar paper or leave it in?

A. Left it in and cut it off.

Q. Do you know whether Mr. Hurlbut, in the work he done in diamond blocks, puts anything or leaves anything in between the blocks?

A. Not as I know of; I never seen his work done and never worked for him.

Q. Can you tell me the name of the men you used to work for in Bavaria?

A. The boss was Schaptapf; that was in Nuremberg, and then in Munich I worked for one by the name of Fox. I guess they are long dead.

Q. How many years did you work in Germany?

A. I commenced at 13 years, and then I worked until I was 21 or two years old—four or five years apprenticeship—and then I got to travel around and go in big cities and see work done there.

Q. Work for yourself?

A. No.

Q. As journeyman for others?

A. Yes, sir.

Q. Where did you work first?

A. I worked in Nuremberg first.

Q. How long a time?

A. 1844 to 1846.

Q. And in Munich?

A. I went away from home in 1846, and in 1850 I came to this part of the country.

Q. What years did you work in Munich?

A. That was the first year I went away from home.

316 Q. Do you know of other work being done in Munich or Nuremberg and other parts of Bavaria of this same kind?

A. Yes, sir; plenty of work; in every city or little village I see that work done.

Q. Did you see that work being done and cement floors being laid?

A. Yes, sir; I saw the men work on it and traveled over where the work was done.

Q. It was always done in sections, and with the use of scantling or timbers or frames for putting the material in place?

A. Yes, sir.

Plaintiff's counsel here gives notice that on the hearing of this case he will move to have the testimony of the witness expunged as to the use in Germany, on the ground that the same is incompetent, and on the ground that in regard to the testimony in regard to the work in Washington and Baltimore no notice has been given or foundation laid for such testimony. That the other testimony of the witness is irrelevant.

(Signature waived.)

317 KLAUS MILLER, called by plaintiff, being sworn, testified:

A. I am 33 years old in September; I live in Chicago; I came here the fall of the big fire, 1871.

Q. When did you come from Germany?

A. I came in 1869.

Q. What is your work here?

A. I am driving express now, but I have laid brick and laid floors and sidewalks, and so on.

Q. You have been engaged, then, in this work of laying cement sidewalks and floors?

A. Yes, sir.

Q. How long?

A. Different years. I worked for Jenkins and Decreet, then for Hurlbut; I worked for Hurlbut, I can't tell how many years; five or six; my brother next.

Q. When did you stop working for Hurlbut?

A. It was last fall, two years ago—I believe it was when we came back from Milwaukee.

Q. You did some work in Milwaukee?

A. Yes, sir; I worked there.

Q. How long were you there?

A. I lived there for five months with my family—I moved there.

Q. Were you working all that time on the work of the Phillip Best Brewing Company?

A. No, sir; we worked there two and a half months, I guess.

Q. What work did you help in down there?

A. I done the finishing most of the time.

Q. What work?

A. I finished the top work.

Q. On what jobs?

A. On the malt-house floor.

Q. Was this all in one building?

A. Yes, sir; it was all in one building—second floor, I guess.

Q. Did you have anything to do with the sidewalk work in front of their office?

318 A. No, sir; I was not there at that time. I had some other work. My brother did that—done work on that piece.

Q. Who hired you at that time?

A. Mr. Hurlbut.

Q. How was this work done on the malt floors?

A. We put down scantling about four feet wide, as far a man can reach.

Q. You don't mean the scantling was four feet wide?

A. No, sir; the spot we were working at.

Q. You started at the end, or the side of the building?

A. Right along the side.

Q. And you laid your scantling about four feet from the wall?

A. Four feet apart all the time.

Q. Then what?

A. Then when we had one row done we moved the scantling back; of course we had to knock the edge down to make the floor tight. We knocked it down with a shovel or trowel—knock the edges down so the others get onto it.

Q. After you had knocked it down was the edge smooth or rough?

A. Rough—that is, what we wanted for the other part to stick onto it.

Q. Did you want to leave a joint or leave no joint?

A. We always wanted it as tight as we can get it, so it don't leak.

Q. After you had beveled the edge off, what did you do next?

A. Put the gravel in and rammed it down, and after we
319 had it rammed down put the fine stuff on top of it, and took a straight edge and leveled it off the same height as the others.

Q. You took pains to level it off with the straight edge?

A. Yes, sir.

Q. Did you put any pieces of tin or paper or other materials between the one section you were making and the other section you had finished?

A. No, sir.

Q. When you had your work done in a room were there any joints between the sections?

A. After we got through they say it cracked in some places. The building settles a little, maybe, then they crack. Of course, the floor commences to leak then, and they don't want it.

Q. You try to make it so it will not leak?

A. Yes, sir.

Q. Did you ever see work done under the Schillinger patent?

A. Yes, sir; I worked on that myself for Jenkins and Decreet—Jenkins and Selby.

Q. What did Jenkins and Selby do about putting anything between in the blocks?

A. You mean in making the sidewalk?

Q. Yes, sir.

A. They put tar paper in.

Q. About when was that?

A. That was the next summer after the fire here.

Q. How long did you work for them?

A. I guess that summer and the next summer—for about two years.

Q. Have you ever made sidewalks for Hurlbut?

A. Yes, sir; I did.

320 Q. Do you know whether he puts tar paper or anything else between the blocks of his sidewalk?

A. He never did.

Q. Do you know whether tar paper or any other material was put in between the blocks of the sidewalk on Chestnut street, in front of Best and Company's office, in Milwaukee?

A. I saw it after it was done, but I didn't see no paper; I don't believe he had any paper there.

Q. Did you ever see or know Hurlbut to use anything of that kind?

A. No, sir; I never seen it.

Q. Do you know, from having done that kind of work there for Hurlbut, how the block sidewalk was laid in Milwaukee?

A. I don't know who you mean.

Q. Have you worked for Hurlbut in laying these diamond block sidewalks?

A. In Milwaukee?

Q. No, sir; anywhere.
A. Yes, sir.
Q. Do you know how he does it?
A. Yes, sir.
Q. Do you know, from having done such work for him and having seen that sidewalk in Milwaukee, how the Milwaukee sidewalk was made?
A. I think it was made the same way that Hurlbut made it here.
Q. How did Hurlbut make those walks here?
A. He put on these square frames, the same as you have here—zigzag frames. When we had one row done — put the strips on.
321 Q. What they call parting strips?
A. Yes; we call them strips, and lay them on to keep one color from the other, so as not to run over.
Q. You lay those on the finished block?
A. Yes, sir.
Q. Do you lay the rubber side down or up?
A. This side down; them hooks is for catching on.
Q. That edge of the parting strip laid over the edge of the finished block?
A. Yes, sir.
Q. After the new block was set in there did you leave the parting strips or take them out?
A. We took them out and beveled it down with a trowel to make it even.
Q. What did you press down with a trowel—the new block just made?
A. No; both the old ones, to make them smooth; the strips made a mark; we tried to make that smooth and even again; that is all we done.
Q. I see this model of a straight edge, D, has a notch at one end?
A. Yes, sir.
Q. Where does that go?
A. Right along even with the straight edge—on top of the straight edge—fit so that the bottom of the straight edge would be level over the blocks.
Q. You see this strip marked "A?"
A. Yes, sir.
Q. Is that the kind of a strip you used to use?
A. Yes, sir.
Q. Having a little piece of iron here to hold it in place, like this?
322 A. Yes, sir.
Q. Did you at any time in making those diamond blocks, or in doing any of the other work, use any tins or pieces of metal like the one I have in my hand here?
A. No, sir.
Q. Not to put anywhere in between the blocks?
A. No, sir.
Q. What was the shape of the sides of those diamond blocks?

A. That was different—three and one-half or four feet.

Q. I mean what was the shape of the sides of them?

A. We had different; we had the right and left frames; we had some frames turned to the right and some to the left.

Q. What would you call this frame B?

A. I don't know; I didn't lay no frames; I only saw it done.

Q. You say some went to the right and some to the left. What do you mean—that the sides of the block went to the right and left?

A. Yes, sir. The next frame you put against here; it is different. The other one is just the same size as this; the frames are being changed over all the time.

Q. Are the sides of the block straight down or sloping?

A. Always were sloped that way.

Q. One side of the block laid would go under the block that was laid before?

A. Yes, sir.

Q. When you came to the opposite side of the new block how was that laid?

323 A. So as to go under the next block that was made. They were standing out on the bottom and these were standing out on top, you see.

Q. After the blocks were laid like this could you get up one of these blocks without breaking it?

A. I never tried; I don't know.

Q. When laying the blocks did you endeavor to make those without joints or leave joints—the blocks in the sidewalks?

A. No; we never made joints; we always made them close together.

Q. Made them snug up?

A. Yes, sir.

Q. Did you pound down the cement and gravel?

A. Yes, sir.

Q. Press them hard against each other?

A. Yes, sir.

Q. You did that same thing in the floors?

A. Yes, sir.

Q. About what year was this you were in Milwaukee?

A. Two years ago last summer—1880, I believe.

Q. When finishing your work at night, if the floor was not done, how did you leave the edge?

A. We left it square.

Q. Did not break it down?

A. Sometimes we did; sometimes we left it square.

Cross-examined:

Cr. Q. You did not see the sidewalk of the Best Brewing Co. laid?

A. No, sir.

Cr. Q. Your brother, John Miller, laid that?

A. He laid it; yes, sir.

324 Cr. Q. Did you make an affidavit recently in Mr. Hurlbut's suit?

A. How?

Cr. Q. What kind of an implement is this device that you tamped it down with?

Q. Iron rammers.

Cr. Q. Something like a sledge-hammer head?

A. Yes, sir; about six inches square.

Cr. Q. When you lay a section of a floor—we will say this is a section of a floor—you fill first in the coarse material?

A. Yes, sir.

Cr. Q. Then so you have a half an inch of the fine material on top?

A. Yes, sir.

Cr. Q. You take your rammer and ram the course material down?

A. Yes, sir.

Cr. Q. Suppose this is a block; you ram it down here close up to the block?

A. Yes, sir.

Cr. Q. And then this coarse material is made of sand, gravel, and cement?

A. Yes, sir.

Cr. Q. About one part of cement to six or seven parts of the other stuff?

A. No, sir; I didn't take notice. I don't know. I never noticed that; the foreman attends to that.

Cr. Q. Who attended to that in the malt house when you did the floors?

A. My brother.

Cr. Q. All the time?

325 A. Yes, sir.

Cr. Q. Was he there all the time?

A. Yes, sir.

Cr. Q. The upper course is about half an inch thick in that case?

A. Yes, sir; a little more in some places.

Cr. Q. And that was smoothed off with a straight edge?

A. Yes, sir.

Cr. Q. Now, you say the edge was broken down with a shovel?

A. Yes, sir.

Cr. Q. And sometimes with a trowel?

A. Yes, sir.

Cr. Q. That was cut down right through, straight?

A. No, sir; we were not particular about it.

Cr. Q. That cuts pretty nearly down to the floor—almost way down?

A. All the stones breaks out very easy—makes it rough.

Cr. Q. The coarse stuff underneath is porous and spongy like—it cuts it very easy?

A. Yes, sir; the way the gravel is.

Cr. Q. The upper material is close and compact—that really makes the close finish on top?

A. Yes, sir.

Cr. Q. After this floor is set awhile the joints open, don't they?

A. Different places crack sometimes when the buildings settle.
Cr. Q. The crack runs along where the joint is?
A. Sometimes they crack crosswise.
326 Cr. Q. Usually they crack along the seam?
A. Sometimes they do.
Cr. Q. Don't they generally?
A. I never took any notice of that.
Cr. Q. You cannot state positively, then?
A. No, sir.
Cr. Q. Your idea is they would be more likely to crack across the seam than across the block?
A. Of course, they might do that.
Cr. Q. Why would they be more apt to do that?
A. Perhaps they would crack where we stopped at night.
Cr. Q. Did you see the work around Pabst's fountain?
A. Whereabouts is that?
Cr. Q. In his yard, there, around the fountain—in his yard in Milwaukee—across from the office of the brewing company.

Objected to.

A. that little piece there? Yes, sir.
Cr. Q. Do you remember how that was made?
A. No, sir. Do you mean around the fountain in the garden?
Cr. Q. Yes, sir.
A. That is flag.
Cr. Q. Those flags had a joint line between—across them?
A. Yes, sir.
Cr. Q. How was that made?
A. With a piece of iron—marked it across.
Cr. Q. With a piece of iron?
A. Yes, sir; a straight edge—a piece of iron run right along the straight edge.

327 Testimony as to work in the garden objected to.

Cr. Q. In these diamond sidewalks those blocks separated in separate blocks after awhile, did not they?
A. I guess they did.
Cr. Q. And they separated along the line that is marked across here?
A. Yes, sir.
Cr. Q. Did you ever see one of these taken up?
A. No, sir.
Cr. Q. Do you know they can be taken up by commencing on the edge?
A. Maybe—I don't know—breaking them off.
Cr. Q. You have not taken notice of that, especially?
A. No, sir.
Cr. Q. Did you work for Perkins and Stevenson, too?
A. Yes, sir.
Cr. Q. Making the same kind of walks?
A. Yes, sir.

Cr. Q. And brewery floors?
A. I didn't make any floors for them.
Cr. Q. How long did you work for Perkins and Stevenson?
A. I don't know. I guess about two summers.
Cr. Q. And two summers for Jenkins and Selby?
A. I did not work for Perkins and Stevenson at all. It was Jenkins and Selby I worked for.
Cr. Q. Did Mr. Hurlbut work for Jenkins and Selby at the same time you were with them?
A. A short time.
Cr. Q. Did any one in Chicago lay these pavements before Jenkins and Selby that you know of?
328 A. I don't know.
Cr. Q. You have frequently seen Mr. Hurlbut make these flag pavements in Chicago the same as this was made in Pabst's garden?
A. Yes, sir.
Cr. Q. Striking the joint line off in that way?

Objected to as immaterial.

Cr. Q. About how deep is that joint line cut—an eighth or a sixteenth of an inch?
A. About a sixteenth of an inch—just made a mark through.
Cr. Q. Then the cracking runs along that line?
A. Yes, sir; it is done to make the mark.
Cr. Q. These hooks on here set down on the block like that—right up close between them?
A. Yes, sir.
Cr. Q. That is cut down between the two blocks?
A. Yes, sir.
Cr. Q. Then you finished right up to this?
A. Yes, sir.
Cr. Q. Then you took your straight edge with a notch in it, which rests on the other block, and you float right across it?
A. Yes, sir.
Cr. Q. That gives a smooth finish?
A. Yes, sir.
Cr. Q. After this stone is finished then you draw this out like this?
A. Pull it up straight; yes, sir.
Cr. Q. Then you take a trowel and smooth it over again?
329 A. Yes, sir.
Cr. Q. Cement sets very quickly?
A. Yes, sir.
Cr. Q. Portland cement commences to set as soon as you put the water to it?
A. Yes, sir.
Cr. Q. When the block separates afterwards, it separates on the line where this parting strip was?
A. Yes, sir. How do you mean?
Cr. Q. This parting strip, we will say, goes right along here?

A. Yes, sir.

Cr. Q. Or right along here?

A. Yes, sir.

Cr. Q. These blocks separate on the line where the parting strip was?

A. That is not so.

Cr. Q. They don't separate through here, but here—they separate along this line?

A. Yes, sir.

Cr. Q. The joint line?

A. Yes, sir.

Cr. Q. In making the blocks, in the first place, you get them as close together as you can so the sidewalk shall always be as tight as possible?

A. Yes, sir.

Cr. Q. You understand, on the outset, you are going to have a joint there; you know it will crack and make a joint?

A. We never make a joint on a diamond sidewalk.

Cr. Q. You know it will separate?

A. Maybe the sidewalk settles down.

330 Cr. Q. Did you ever see one that did not separate?

A. I have seen it settle down and one stone crack from the other.

Cr. Q. Along this line?

A. Yes, sir.

Cr. Q. Did you ever see a sidewalk made like this that did not separate?

A. I don't know, sir.

Cr. Q. Can you tell me of one that did not, sir?

A. No, sir; I guess not.

Cr. Q. You know that when you lay them that they will separate?

A. We try to make it—sometimes they stand two or three years.

Cr. Q. But eventually they do separate?

A. Yes, sir.

Cr. Q. And the separation comes right along where the parting strip was?

A. Yes, sir; generally.

Redirect examination:

R. D. Q. What do you mean when you say that the pavement separates along the line—along the joint line; what do you mean by that? In the first place we will come to the diamond block sidewalk. Do you mean to say that these stones always crack apart or not always?

A. They don't always crack; if the foundation is solid they don't crack so often; maybe they crack in a year or two.

R. D. Q. Do you know whether the stones do always crack apart or don't you know?

A. I don't know, sir.

331 R. D. Q. Have you always looked at them after a year or two to see whether they cracked at all or not?

A. I never took notice of that.

R. D. Q. Did you mean to answer to Mr. Hey here that they always cracked apart after a year or two?

A. I can't say whether they do or not.

R. D. Q. Now, in regard to that flagging work, such as you say was done in Pabst's garden.

A. Yes, sir.

R. D. Q. After the work was done you say that a mark was made on the stone or on the cement walk?

A. Yes, sir.

R. D. Q. How deep was that mark made into the cement?

A. About an eighth or sixteenth of an inch.

R. D. Q. A little bit of a mark?

A. Yes, sir.

R. D. Q. What is it made of?

A. A piece of iron struck right along.

R. D. Q. Whereabouts on this garden walk were these marks made?

A. Right there where they put the stones together.

R. D. Q. What was that mark made for?

A. It looks more a flag or stone, then.

R. D. Q. Was it made for anything else except the looks?

A. I guess that is all.

R. D. Q. Did the mark that was made on the top here, about an eighth or sixteenth of an inch in depth, do any good to the walk that you know of?

A. Only the looks of it.

332 R. D. Q. Does the work afterwards crack along the line of that mark, so far as you know—where you have made that mark?

A. I didn't take any notice of it.

R. D. Q. Did you ever see it crack along the line afterwards?

A. I never looked to see.

R. D. Q. You don't know whether it does or not?

A. No, sir.

R. D. Q. Do you know whether this flagging pavement, so called, cracks at all anywheres afterwards?

A. I don't know.

R. D. Q. Didn't look at all?

A. No, sir.

R. D. Q. Was it part of your business to look afterwards to see whether the pavement cracked anywhere?

A. No, sir.

R. D. Q. Did the making of this mark in the flagging pavement, such as the garden pavement, have anything to do with the cracking of it, so far as you know?

A. No; I guess not.

R. D. Q. Did you mean to say to Mr. Hey that this mark was made

on the top of the flagging pavement so that it should crack along the line of that mark?

A. I did not say so; the mark is only made there for show. We always make the mark right along the line; we always make the line where we put one stone against the other. If it should crack—if one stone settles—it may crack there.

Mr. HEY: I understand you to say you don't know whether it always cracks along that line?

A. I took no notice. I say, so far as I know the business, if it should settle down one stone, it could not crack any other place except that.

R. D. Q. It would be more likely to crack where the new block had been placed against the old one?

A. Yes, sir; right there in the joint.

R. D. Q. If it should happen to settle the other way—across the other way—then the long sections might crack right across, might they not?

A. Yes, sir.

R. D. Q. In fact, you never noticed the cracking at all?

A. I never took notice of the cracking at all.

333 MICHAEL BOTZLER sworn:

A. I came to this city in 1868 or 1869.

Q. Have you been in the business of laying cement floors in Chicago?

A. Yes, sir.

Objected to.

Q. Since when?

A. Since I was foreman, in 1869, for Edward Wistemeyer.

All testimony of this witness is objected to on the ground that it is improper and incompetent, no foundation for the same, neither in the answer or otherwise, and counsel gives notice that on the hearing of this case he will move to have the same suppressed.

Q. Did you lay cement floors in 1868 and 1869?

A. July and August was the first floor.

Q. What did you lay, what sort of a cement floor?

334 A. Malt floor in the brewery—Huck's Brewing Company.

Q. In the city of Chicago?

A. In the city of Chicago.

Q. In the floor of the malt house?

A. Yes, sir; in the cellar; they used it for malting.

Q. What materials did they use?

A. Gravel, sand, and Portland cement.

Q. What was the manner of laying that floor?

A. I speak not good English.

Q. What kind of tools did you use?

A. Plastering trowel and all them things made for this kind of work.

Q. Did you use any strips or boards or straight edge?
A. We used strips.
Q. Made of what?
A. Made of small strips, about like this, and scantling two by three.
Q. What did you do with the scantling?
A. Took it outside to lay the floor, to make it all level.
Q. About how much of this floor do you cover at one time?
A. Two and one-half inches deep, mostly.
Q. How wide?
A. About four feet wide; three and one-half or four.
Q. How long?
A. The cellar was 150 feet long; most scantling is about 16 feet long.

Q. How long a place on the floor did you cover at one time?
335 A. As long as the floor is. We finish the floor then take the scantling away.
Q. Take this first section you made—before you take the scantling away you make that up against the side or end of the floor, do you?
A. The end of the floor; yes, sir.
Q. You lay that scantling how far from the end of the floor, about how far, when you laid your strip of scantling along; how far was it from the end of the floor you laid the scantling the first time?
A. About four feet.
Q. And how long a strip of scantling did you lay down—or strips of scantling?
A. As long as the floor is; so long as the floor is.
Q. You fill up this vacant space between the scantling and the wall, do you?
A. Yes, sir.
Q. Do you fill it up to the scantling—clear up from the wall, all the way to the scantling, four feet wide?
A. Yes, sir; fill the whole piece up.
Q. Then put in the fine material on the top?
A. Yes, sir.
Q. Do you take out the strip before you put in the fine material?
A. No; we don't.
Q. Put in the fine material first?
A. Yes, sir.
Q. Is the strip what you call the scantling?
A. The strip is about three-fourths of an inch thick and the scantling is two inches thick.
Q. Where does the strip come, on top of the scantling?
A. No, sir; on the side of the fresh material.
336 Q. Suppose that the scantling and that is the strip, where does the strip go?
A. The strip goes right on here, and then we make another piece on just as wide as this; I call this four feet; we leave the strip in.
Q. You put in the strip so, do you?

A. Yes, sir.

Q. Against the side?

A. Yes, sir. Then we finish the next block; then we take this out and finish with the fine material.

Q. The strip goes in by the side of the fine work; how deep down does the strip go?

A. Clear to the bottom of the floor.

Q. When you have got that done you pull that out and fill it up with the cement?

A. Cement and sand; yes, sir.

Q. What do you leave the strip in there for?

A. This material is soft. If I had no strips the corner would break off; that is all.

Q. Do you use that strip in making square blocks alone, like that, or in making this floor in the malt house?

A. We use the blocks just the same if we make sidewalks with flags; I use them just the same.

Q. And the use of the strip was so as to prevent the finished sections on blocks from breaking off?

A. Yes, sir.

Q. When you had got the second section all filled up so you moved the scantling back another four feet, did you?

A. Yes, sir.

Q. And put the strip where the scantling was then?

A. Yes, sir.

Q. And so go on until the whole floor is covered?

A. Yes, sir.

337 Q. In laying this floor did you have a coarser material at the bottom, and then a finer material, with more cement in, on the top?

A. Yes, sir.

Q. Are you using this method now in making cement floors?

A. Oh, yes, sir; just the same.

Q. And you have used it ever since 1869?

A. Yes, sir; every year. I worked for myself since 1872.

Q. When you laid these cement floors did you try to make joints between the two sections, or did you try to fill and stop all the joints? This floor in the malt house, what did you do there about joints? Did you want to make joints or take away the joints?

A. Take away the joints; leave them off; smooth them up on the top.

Q. What did you fill these places with where you took the strips out?

A. With fine materials—sand and Portland cement.

Q. When you made these malt-house floors did you try to make them so that they would remain in separate sections, or so that they would be all in one solid mass?

A. All in one solid mass.

Q. Did you make also outside walks—pavements in blocks?

A. Yes, sir; we made it in blocks.

Q. Do you mean diamond blocks, such as are shown in the model here?

A. I did make some.

Q. When you have made those diamond block pavements or flagstone pavements do you leave joints in them between the separate blocks?

338 A. We fill the joints up. After this we put some strips in there and leave the strips out and put small strips in about a 16th of an inch thick; leave them out and fill it up.

Q. And how long a time is it since you have been doing that on these outside pavements?

A. 1872, 1873. I don't know exactly when first.

Q. Did you begin laying malt floors before you laid outside pavements?

A. Yes, sir.

Q. You think you did not make any pavement at all until 1872?

A. Yes, sir; I laid some pavement in 1872.

Q. I mean before 1872.

A. Yes, sir; I did. I was foreman before.

Q. That is what I mean. Did you make any pavement, either working for yourself or Westmeyer, before 1872?

A. We make something. I guess we didn't make it outside. I think we made it inside of the building. I know one place we made it in Chicago, on the West Side.

Q. Do you remember the name?

A. Schuettler.

Q. When you laid these floors of cement did you pound down the floors hard?

A. Yes, sir.

Q. Where did you first see these strips used between the sections or blocks?

A. I didn't see it; I made it myself. It was my own idea when I started in 1869.

Q. Do not these cement floors sometimes crack or draw apart, open where the strips went?

339 A. Yes, sir; sometimes.

Q. Sometimes not?

A. Sometimes not; sometimes settles the ground a little.

Q. Did you proceed in this way when laying floors by one section after another until the whole floor was laid?

A. Yes, sir.

Q. Did you try when laying these floors in sections to keep the edge of the section already completed smooth and straight until the next one was filled in against it?

A. Yes, sir.

Q. And until the next one was set a little, I suppose?

A. Yes, sir.

Q. How wide did you say or how thick were those strips you put in between the sections?

A. One-half or one-fourth of an inch thick.

Q. And running all the way across the floor the whole length of the section?

A. Yes, sir.

Q. Do you remember laying any other floor in 1869?

A. I laid a pavement for Downer and Bemis in the basement of their malt-house, on South Park avenue, in Chicago, between 23rd and 24th streets.

Q. Did you lay that in the same manner and using the same tools as you have been describing?

A. Yes, sir.

Q. Did you afterwards lay similar floors in the years 1870, 1871, and 1873?

A. Yes, sir; I laid strips every year.

Q. Did you lay any in those years I have mentioned anywhere else besides Chicago?

A. Yes, sir; I laid one in St. Louis.

340 Q. For whom in St. Louis?

A. Schneider Brewing Company.

Q. Do you remember his first name?

A. I don't know his first name.

Q. When you laid pavements or sidewalks did you use the same kind of strips that you used in the malt house?

A. Mostly; not every time.

Q. Were the strips as thick as those in the malt house or thinner?

A. Mostly one size.

Q. Did you leave these strips in or always take them out as soon as you had got the next block or section laid?

A. As soon as the next block is finished then we take them out.

Q. And always fill up the joints or holes left with fine cement?

A. Fine material; yes, sir.

Q. That is, sand and cement?

A. Yes, sir.

Q. Have you had many men in your employ on this sort of work during these years you have mentioned?

A. I had sometimes 8; sometimes 16, and sometimes 24.

Q. All at one time?

A. All at one time.

Q. Do you recollect what time in 1869 it was that you first laid the floor or laid any floor in cement?

A. It was the first I laid here in Chicago.

Q. When was it; what time in the year?

A. The first was in July or August.

Q. Did you ever lay any anywhere before that time?

A. No, sir.

341 Q. Had you ever laid any cement floor or seen cement floor laid before then?

A. I guess not. I saw some in the old country, not here.

Q. What year?

A. 1865; 1864 I saw some in the old country.

Objected to; improper and incompetent.

Q. Are those cement floors common in Germany?

A. Yes, sir; we use the same cement. We use English Portland cement in Germany?

Q. I mean are they much used there and many floors made in Germany?

A. Most floors for malt houses are made in this way—made of cement.

Q. What part of Germany did you see them in?

Same objection.

A. It was in Bavaria.

Q. You lived there, did you?

A. Yes, sir.

Q. What part of Bavaria; what city?

A. Straubing and Munich.

Q. Do you know whether those cement floors have been long in use there—in Germany?

Objected to.

A. I know at that time, not before. I was a young man at the same time.

Q. Did you ever see any made there?

A. Oh, yes, sir; I saw some made before this.

Q. Did you see the men making them?

342 A. I seen them at the same time—in 1864 and 1865.

Q. How did they make them there?

A. Most use stone—coarse stone—cuts them in pieces and mix them with sand and Portland cement, altogether, for the coarse stuff; then they put the fine a quarter of an inch on top.

Q. Make them with the same strips and scantling as you do them?

A. We didn't use the strips inside; instead we used the scantling outside.

Counsel for complainant gives notice that he shall move to have this witness' testimony relating to use in Germany expunged under the ground of his objection at the hearing of this case.

Cross-examined:

Cr. Q. How many floors did you lay down in Bemis' brewery?

A. Only one.

Cr. Q. Is that in use now?

A. No; I guess Hurlbut made it over.

Cr. Q. How many floors in Huck's did you say?

A. Two.

Cr. Q. Are they in use now?

A. No; the house burned down in 1871?

Cr. Q. You say you have laid a good many sidewalks in Chicago?

A. Yes, sir; I did.

Cr. Q. How many do you think?

A. A couple of hundred, I guess. I don't know how many.

343 Cr. Q. Where are they laid mostly—what part of the city?

A. Most on the North Side; some on the West Side; a good deal on the West Side; some on the South Side; not much on the South Side.

Cr. Q. Is your name stamped on the walks?

A. Yes, sir; in some places; not all.

Cr. Q. Can you furnish a list of the sidewalks which you laid in Chicago?

A. Yes, sir; of some.

Cr. Q. Will you furnish a list and have it attached to your deposition?

A. Yes, sir; how soon do you want it?

Cr. Q. In two weeks. How were those sidewalks made; were they all flags?

A. Square blocks; the most is in flags, about 4 by 8, 4 by 6; some 4 by 7. Some sidewalks is 8 feet wide, some 7, and some 6.

Cr. Q. Those walks were made with a small thin strip between the joints?

A. Yes, sir.

Cr. Q. And then the strips are taken out afterwards?

A. Yes, sir.

Cr. Q. And fine material filled in?

A. Yes, sir.

Cr. Q. Did you make any of them and cut them in on the top with a trowel?

A. Yes, sir; I did.

Cr. Q. Between the joints?

A. Cut a joint in, take the strip out and finish, and afterwards we cut the joint with a trowel; just put the strips on and make the joint with a trowel.

344 Cr. Q. Is that the way all those flags were laid?

A. Mostly.

Cr. Q. Did you lay the diamond blocks?

A. Some.

Cr. Q. How did you make the joints in those?

A. Didn't make any joints in the diamond blocks; lifted the strip out.

Cr. Q. Did you put the thin strips in?

A. Thin strips—about a 16th of an inch thick.

Cr. Q. Between the blocks; then you lifted them out and made it smooth?

A. Yes, sir.

Re-examined:

R. D. Q. Do you believe you can give the name of every man you have made a sidewalk for?

A. I don't know every man. There is a good many I did work for. It is over ten years since I worked here in Chicago, starting in 1872.

(Witness is excused by complainant's counsel from making the list.)

I hereby certify the foregoing to be the depositions of witnesses taken before me at Chicago, Ill., at times as appears from the fore-

going record, the signatures of the witnesses being waived and the depositions being taken pursuant to notice and stipulation.

Attest: FR. BLOODGOOD,
Examiner in Chancery.

Milwaukee, Jan. 22nd, 1883.

345 And the various mechanical exhibits in said depositions named, namely, Defendant's Exhibits Chesneau Model, Claridge Model, Haichois Model, D'Harcourt Model, Diamond Block Pavement and Mold Parting Strip, deposition of William S. Bates, Exhibits A B C D, depositions of John Miller.

And the complainants, to maintain the issues on their part, offered and put in evidence in rebuttal and used at the hearing as follows:

Depositions of Elmer J. Salisbury, Charles E. Hall, and Amos H. Perkins, in words and figures as follows, to wit:

346 *Complainants' Evidence in Rebuttal.*

Circuit Court of the United States, Northern District of Illinois.
In Equity.

JOHN J. SCHILLINGER *et al. against* J. B. HURLBUT.

Testimony taken in the above-entitled cause pursuant to agreement, before Charles C. Linthicum, notary public, at rooms
347 60 and 61, Honore building, Chicago, commencing on Thursday, the 19th July, 1883, at 11 o'clock a. m.

Present: George W. Hey, Esq., of counsel for complainants; Oscar W. Bond, Esq., of counsel for defendant.

ELMER J. SALISBURY, a witness produced, sworn, and examined on behalf of complainants, deposes and testifies as follows in answer to questions by Mr. HEY:

Q. 1. Are you one of the complainants in this cause, and have you been examined once before herein on the *prima facie* case?

FRIDAY, *July 20th*, 1883.

Met pursuant to adjournment.
Present: As before.

A. Yes, sir.

Q. 2. Please describe the composition of the lower course of the flag pavements, such as you have seen Mr. Hurlbut or his men make.

A. I don't know that I can give the exact mixture used by him, but I can give it as used generally: Seven parts of gravel and coarse sand; one part of cement. The gravel and coarse sand varies in proportion from five to seven parts. Those are thoroughly mixed dry and then moistened with water and then tamped into position. For three-inch work there is generally two and a half inches of this mixt-

ure, and for four inch three and a half. In placing this
348 coarse material in the foundation the finer parts are placed against the scantling and stone already made.

Q. 3. Does this coarse lower course have a tendency to bind with and adhere to the lower course of the adjoining stone in Mr. Hurlbut's method of making these pavements?

A. Well, that is the weakest point of the stone if it is all thoroughly mixed.

Q. 4. After the coarse material is placed in the mould by the defendant and tamped down, what next does he do in forming a stone?

A. He puts on the top or finer course, which is composed of cement and sharp sand in about equal parts.

Q. 5. What is the tendency of this fine upper course relative to the upper course of the adjoining stone when the two courses come together in a plastic state?

A. The fine material is made very soft and rich and is apt to make a solid mass, joining much more readily than the lower course.

Q. 6. Mr. Hurlbut and his witnesses testify that after the stones are completed a mark is cut or made with a trowel an eighth of an inch or so in depth between the two stones. What is the effect of such mark or cut upon the blocks in case upheaval occurs from frost or other causes?

A. It would most certainly control the cracking line, unless the stone was very weak in some particular point from carelessness in not being properly mixed.

Q. 7. Mr. Bates, at cross-interrogatory 27, page 19, defend-
349 ant's printed record, which I now read you (counsel reads), expresses an opinion in reference to the effect of such cut or mark. Please state how his opinion agrees with your experience and observation.

A. My experience has been that it would follow the cut over the timber mark.

Q. 8. Have you recently examined carefully a pavement laid by defendant during the present year, with especial reference to the joint made as stated above?

A. Yes, sir.

Q. 9. Where was it?

A. At the corner of 32nd street and Groveland avenue.

Q. 10. Did you make any test at the joint on that pavement?

A. I put my knife blade down into the joint a half to three-quarters of an inch, and it showed a nice, open, clear, and distinctly cut joint.

Q. 11. Do you know for what purpose the cut or mark is made between the stone?

A. Yes, sir. What I use it for is to control the cracking.

Q. 12. And does it have the same effect on Mr. Hurlbut's pavement?

A. Yes, sir.

Q. 13. Have you carefully examined pavements constructed by him with special reference to this point?

A. Yes, sir.

350 Q. 14. And are enabled from such inspection to testify positively in this regard.

A. I think I am.

Q. 15. Have you examined flags or pieces of flags constructed as you have described after the flags or pieces of flags have been taken up—I mean with reference to the condition of the stone?

A. I have diamond work but not flags.

Q. 16. Does the mark or trowel cut tend to separate the stones at the joint line?

A. It does.

Q. 17. Have you seen pavements constructed by the defendant in which there was distinct evidence of separation?

A. Yes, sir.

Q. 18. What condition was the pavement in which made the fact of separation palpable?

A. Uneven surface and open joints.

Q. 19. By uneven surface am I to understand blocks raised so as to project above adjoining blocks or how otherwise?

A. Yes, sir.

Cross-examination by Mr. BOND:

C. Q. 1. Are we to understand that the mixture for the lower course is varied in its proportions of gravel, coarse sand, and cement; and, if so, what is the object in varying these proportions?

A. It is varied; and the object is that some gravel varies in degree of fineness, and some classes of work is intended to be stronger than others.

351 C. Q. 2. In laying this pavement, then, you would not follow any specific formula in mixing the materials, but would mix them to suit the work and the condition of the materials; is that so?

A. Yes, sir.

C. Q. 3. After the first course is mixed and tamped into place between the scantling and the blocks already formed, is the scantling removed by defendant before completing the block with the top dressing, or is the scantling left in place until the top dressing is applied?

A. The scantling is left in place until the stone is finished.

C. Q. 4. How long after the block is formed complete will that block remain before the next succeeding block of the next course is formed?

A. That may be ten minutes or it may be twenty-five.

C. Q. 5. Why do you not form the next succeeding block of the next row immediately?

A. We work at two different places because we can work that way to greater advantage. While the finisher is finishing one stone the men are putting another ready for the finisher.

C. Q. 6. Is that the only object?

A. No, sir; some cements set faster than others, and there might be more suction in the ground to absorb the water at one place than at another.

C. Q. 7. Is it not desirable to have the first stone set before proceeding with the next stone, in order to obviate the natural tendency of the material when in a plastic condition to adhere?

352 A. When a stone is ready to be finished, then you can take away your scantling. A stone cannot be finished until it is set sufficiently to remove the scantling.

C. Q. 8. Supposing the scantling were removed immediately and the next stone formed, what would be the condition between the abutting edges of the two?

A. The same as it would be after it was finished.

C. Q. 9. Your idea, then, is that you can form two stones, one right after the other, without making a solid union between the two, no matter whether the first stone is set or not; is that it?

A. The top, of course, will be solid.

C. Q. 10. What will be the condition of the bottom?

A. It will be more apt to adhere than in the older stone.

C. Q. 11. Why would it not adhere and be solid the same as the top?

A. Because the first material is a great deal weaker and not so plastic as the top.

C. Q. 12. The first course being sand, gravel, and cement and being thoroughly rammed, and the second course being simply sand and cement spread on, do you think that the simple spreading on would make a stronger union than where ramming was employed with the coarser material, both the upper and lower course being in the same plastic condition?

A. Yes, sir; one of them being so much richer than the other.

353 C. Q. 13. Under this condition of things, please state where, in your opinion, the two stones would be the most liable to break or separate.

A. If it was all evenly mixed it would be most apt to break over the timber line, but it might be irregular or chip off. That would be the weakest spot.

C. Q. 14. Why would the timber line be the weakest point, in your opinion?

A. Because the coarse stuff had been placed against a smooth surface or timber, and the adhesion would not be so great there as elsewhere in the stone.

C. Q. 15. Why would not the adhesion be as great there?

A. Because it is placed up against this smooth timber and a smooth surface in this one stone.

C. Q. 16. And this smooth surface on one stone extends from the top to the bottom, does it not?

A. Yes, sir.

C. Q. 17. The weakest point of the stone would also extend from the top to the bottom as between two stones, would it not?

A. The material all being evenly mixed, it would.

C. Q. 18. And the natural tendency of the stones to separate would be at the weakest joint?

A. Yes, sir; if there was any strain on it from below.

C. Q. 19. You have testified that in your opinion a mark on the

upper surface of the stone controls the cracking. I will ask
354 you if this mark were made an inch away from the timber line, which you say is the weakest point, would the stone separate on that mark line or on the timber line?

A. It might separate either way. If it separated on the mark line it would separate more regularly; if it separated on the timber line it would go zigzag.

C. Q. 20. From your experience, then, you think that a stone which is weak at a given point would break the most readily at that point, do you?

A. If the strain was equal all over it, I should think it would.

C. Q. 21. Where would you consider the weakest point in a concrete sidewalk, either slab or diamond shape?

A. If the stuff was all evenly mixed, at that joint line, I should say.

C. Q. 22. How far on each side of this joint line would the weakness extend ordinarily?

A. It would not extend very far.

C. Q. 23. Would it extend a sixteenth of an inch?

A. Yes, sir; I suppose it would.

C. Q. 24. How much more than the sixteenth of an inch, under ordinary circumstances?

A. I can't tell.

C. Q. 25. The solidity of a stone made of concrete, if the material is properly mixed, would be the same from its exterior through, would it not?

A. No, sir; the top course would be the strongest.

355 C. Q. 26. Which would be the hardest, the edge of the stone or the center?

A. I don't know that there would be any difference.

C. Q. 27. To what extent is the edge of the stone set or hardened before the next stone is formed against such edge?

A. I can't tell.

C. Q. 28. Will it be as hard or harder than the center of the stone?

A. It will be the same.

C. Q. 29. And it is sufficiently hard, as I understand you, to form a smooth surface and prevent the adhesion sufficient to make a solid union?

A. The top part, being so much richer than the under, would be more apt to form a solid mass.

C. Q. 30. In other words, there would be more adhesion, in your opinion, between the top course than there would be between the bottom course?

A. Yes, sir.

C. Q. 31. And this adhesion in the top course would extend to what depth?

A. It would vary according to the thickness of the top course; probably about a half inch.

C. Q. 32. The adhesion of the lower course would extend to the depth of that course also, would it not?

A. What little there might be would.

C. Q. 33. What is the proportion in depth between the upper course and lower course?

356 A. It would be five to one. In three-inch work there would be two inches and a half of coarse and a half inch of fine stuff.

C. Q. 34. There would be, then, five times as much adhering surface in the lower course as in the upper?

A. There would be that much adhering surface exposed, but the adhering quality of the lower course is small in comparison to the upper, and all through there were two and a half inches of adhering surface exposed, there would not be much adhesion, as the stuff is brought up to a smooth scantling.

C. Q. 35. The smaller the degree of adhesion the more liability to break at that point, is it not?

A. Yes, sir.

C. Q. 36. This being the case, where would the separation between the stones be most liable to occur, in the lower course or the upper course?

A. It would be most likely to occur in the under course, if at all; but part of the stone cannot give and not all.

C. Q. 37. It cannot give, and for the reason that the timber line extends up through both courses and both courses are weakened proportionately by this timber line. Is that correct?

A. The under course is weakened to a greater extent, but the top course, being put on in a more plastic state and being richer and stronger, has more adhering qualities than the lower course.

C. Q. 38. Notwithstanding all this about the richness of the upper course and its adhering qualities, is it not a fact that the tim-

357 ber line extending through both courses, as you have testified, weakens the material and causes the block to separate as a whole, so that part of the stone cannot give and not all?

A. That is the weakest part in the stone, if the material is all evenly mixed.

C. Q. 39. And is not this division by the timber line the reason why part of the stone could not give and not all, as you have testified?

A. I testified that part of the stone cannot give and not all, to any extent.

C. Q. 40. Is it not true that part of the stone cannot give and not all because the timber line, extending as it does through both courses, forms a line of separation for both courses and not for either separate from the other?

A. If the stone cracked at all from any upheaval from below, it would probably extend clear through in some direction.

C. Q. 41. Would this cracking of the stone as a whole be on the timber line of the lower course and at some other point on the upper course, or would it be on the timber line in both courses?

A. It might be on the timber line in the coarse part, it might be on the timber line in the fine part, or it might not be. You cannot tell whether it would break over the timber line in the fine part or not.

C. Q. 42. The timber line of both courses is the same vertical line, is it not?

A. Yes, sir.

358 C. Q. 43. And the weakest point in both courses is on this line, is it not?

A. It is with the under course. It may be on top and it may not be.

C. Q. 44. Where would be the least point of adhesion in the upper course—on a line one side of which was set and partly hardened or on a line through the course which had already hardened?

A. Of course that point which was the oldest would have the least adhesion—that is, in building a fresh stone onto an old one.

C. Q. 45. And this point would be the timber line, would it not?

A. It might be and it might not be.

C. Q. 46. The timber line being the point where you build a fresh stone onto an old one, and that point being weakest, as you have just testified, why will not the timber line, then, be the weakest point between the two stones?

A. It will be the weakest point in building a new stone onto an old one, and it may be the weakest point whether in old or new.

C. Q. 47. And this would be true also, would it not, as to the lower course?

A. Certainly; that is the weakest point.

C. Q. 48. The timber line, then, being the weakest point between two stones, and the natural tendency of the stones to separate being at the weakest point, would not the line of separation between the two be on the timber line naturally?

A. It might crack on the timber line if there were any
359 pressure to strain it, or it might not. It it quite likely that it would crack on the timber line.

C. Q. 49. You don't believe that it would be liable to crack and separate through the solid center or portion of the stone instead of the weaker point, do you?

A. It might if the material was not propely mixed. If the material was properly mixed it would be likely to crack at the weakest point.

C. Q. 50. You cannot answer otherwise on this point except that it is a probability. Is that what you mean?

A. I have no way of knowing to a certainty.

C. Q. 51. And yet you are willing to swear most certainly that when the defendant makes a small line or cut on the upper surface of a stone, which at the best does not extend to exceed an eighth of an inch in depth, will control the cracking when such cracking as you believe will not follow a timber line extending through both courses of the stone and between them. Is that so?

A. If the marking was over the timber line or near it would control the cracking. That is my idea and experience. The crack would be even and not zigzag.

C. Q. 52. If the timber line were removed eight inches from the mark where does your experience teach you that the separation would occur?

A. If it opened over the timber line it would open in a zigzag line, while if it opened on this mark it would open in a more regular crack, or would be apt to.

360 C. Q. 53. You do not answer my question as to where your experience teaches you the line of separation would be in case the timber line and the mark were eight inches apart; will you please do so?

A. Over the timber line, it being the weakest point, if there were any upheaval near that point; or if the strain or upheaval came near the mark it would be apt to break there.

C. Q. 54. You have testified that the upper course is by far the strongest, and that there is adhesion on the timber line of both courses, and this adhesion is smaller in the lower course than in the upper. Do you believe that on these conditions a small cut in the strong upper course would so weaken the entire stone that it would produce breakage on that mark or line instead of breaking on a line having less adhesion and extending through both upper and lower courses?

A. I do not.

C. Q. 55. Why, then, do you wish to be understood that the mark or cut most certainly controls the break? Is it not a fact that the timber line being the weakest point controls the break, and the mark, if it assists at all, simply tends to make the break less liable to run zigzag?

A. That is what I have testified to, that the mark is put over the timber line or near it to control the break and to make it less liable to run zigzag.

C. Q. 56. You do not wish to be understood, do you, that this mark or cut controls the break to any other extent than tending to prevent zigzag or uneven breakage?

A. Well, I don't know as I do.

C. Q. 57. A glazier in cutting a pane of glass marks it with a diamond in order to make a straight break, does he not?

A. I believe he does; and a man cuts this cement stone with a trowel in order to make a straight break.

ELMER J. SALISBURY.

361 CHICAGO, *July 19th*, 1883.

CHARLES E. HALL, a witness produced, sworn, and examined on the part of the complainants, deposes and testifies as follows in answer to questions by Mr. HEY:

Q. 1. State your name, age, occupation, and place of residence.

A. Charles E. Hall; fifty-three years; I am connected with the Chicago city railway, and have general charge of their outside business. It is the practical work outside that I have to look after.

Q. 2. Are you familiar with what is termed cement paving?

A. Yes, sir; I have had some experience with it; have worked at it and carried on the business.

Q. 3. Where did you carry on the business?

A. In Chicago.

Q. 4. For how long were you engaged in that business?

362 A. I was engaged in such work, laying artificial stone and cement floors and pavements, from 1872 to 1877.

Q. 5. Do you know J. B. Hurlbut, the defendant?

A. Yes; I am somewhat acquainted with him.

Q. 6. Are you familiar with the artificial stone or cement pavements made by the defendant Hurlbut?

A. Yes; I have seen his men working at the business.

Q. 7. Are you familiar with the action of plastic concrete when laid in cement pavements?

A. Yes, sir.

Q. 8. In the pavements laid by the defendant Hurlbut the witnesses state that a mark or cut with a joint marker or trowel is made between the flags or blocks. Can you state what effect such mark or cut produces?

A. My experience is that if you mark a stone or flag, even to a slight extent, while in a plastic state it will cause it to break at that point quicker than at any other point. It will make the separation follow that line, and that is the object we have in making that mark. My experience has always been that that will control the breaking caused by any upheaval. I mean the marking must be over the timber line between the two stones. It has often been the case that cement pavements have been laid in a solid body, and the result is

363 that when there was frost or any upheaval from below the stones laid in that manner have cracked in a varied manner and without any regularity. In order to obviate that we have marked them, so that when they crack they would crack on the mark over the timber line. The same thing will apply to any artificial stone, whether it be laid in a sidewalk or not. We have used the same method often where we wanted stone to separate easily.

Q. 9. Then am I to understand you that the separation of the stones can be effected and controlled so that it will follow the joint line between them by a slight mark or trowel cut over the timber line?

A. Yes, sir; it will break there every time unless there is some tenable weak spot at some other place caused by a lack of material.

Q. 10. In the pavements you have seen Mr. Hurlbut's men constructing did the cut or mark effect the separation that you have described?

A. Well, I cannot say that it effected it, as I did not see it afterwards, but I supposed that that was the reason why they made it. I have seen stones separated by putting tarred paper between them; also by putting zinc strips between them; also tin and other metal strips.

Q. 11. Is the separation of the flags desirable and useful or is it merely a matter of ornament and appearance?

A. Well, I should say in some cases it was desirable and in other cases ornamental.

Q. 12. But in either event you say it controls the separation?

364 A. The marking does control it, but you can separate it by putting in parting strips.

Q. 13. I understand you to testify that you constructed such pavements?

A. Yes, sir; I have laid pavements in that way.

Q. 14. And you make a slight mark or cut between the stones?

A. Yes, sir.

Q. 15. For what purpose?

A. For the purpose that in case of a slight expansion or contraction they would break on that line.

Cross-examination by Mr. BOND:

C. Q. 1. When did you first work at cement paving?

A. About 1873 or 1874 at laying cement paving, and as early as 1872 I commenced the making of artificial stone. I was at that time foreman of the Freer Stone Company. I afterwards went into business for myself?

C. Q. 2. In making artificial stone in 1872 what practice or form did you follow?

A. Part of the time we made them under what is called the Freer process—that is, artificial stone.

C. Q. 3. Was that process patented?

A. Yes, sir; I believe they had a patent—the Freer patent—for making artificial stone. It did not apply to sidewalks particularly.

C. Q. 4. Do you know the number and date?

A. No, sir; I don't know either.

C. Q. 5. How were the stones formed?

365 A. Under the Freer stone patent the stones were made in molds; but we never made any that way for sidewalks that I am aware of.

C. Q. 6. If made of the proper size and length, width and thickness, could not the Freer stone be used for sidewalks?

A. Yes; I suppose it might be used for that purpose.

C. Q. 7. Can you give in detail the process of making the Freer stone; and, if yea, will you please do so?

A. I can so far as the ingredients are concerned. What they used at the time I can get at pretty near. Their method of manufacturing under their patent was domestic cement, sand, gravel or broken stone, and a solution composed of water, shellac, cut with bicarbonate of soda. The same was made into a matrix or paste and formed in molds. That constituted the method of making it.

C. Q. 8. In laying your concrete pavement in 1873 how did you proceed?

A. We used various methods for separating the stone. We used Portland cement, coarse gravel, and sand; we used in putting down the sidewalks frames and a parting strip made of zinc attached to a piece of wood projecting down about a quarter of an inch; and I have in some cases used tarred paper and in some cases did not use anything, but drew a line with a trowel across the top surface with the timber line or partition or whatever you might call it.

366 C. Q. 9. Please describe how the blocks were formed and laid, as practiced by you in 1873?

A. We used wooden frames forming half of a square, and we made the blocks on the ground where the sidewalk was to be laid in the form of squares or diamonds, sometimes in light colors and at other times using black and white stones in connection. Where the black and white stones were used we used these parting strips that I have mentioned before.

C. Q. 10. After the first row of blocks were formed within the frames, were the frames allowed to remain, in laying the next row, or how did you proceed?

A. We removed the frames as soon as we got to the end of the wood, whatever the distance was, and proceeded to lay the next row.

C. Q. 11. The sides of the blocks first laid would then form two sides of the next row, would they not?

A. Yes, sir.

C. Q. 12. And the next block or row of blocks would be formed complete between the frames and the first row, would they not?

A. By putting in those parting strips they did in that way—the colors separated.

C. Q. 13. The parting strips were, then, for the purpose of preventing the colors from running, were they?

A. They were, where we used more than one color.

367 C. Q. 14. Were they not also for the purpose of preventing the edges of the block being formed from running on the edges of the block formed, irrespective of the color of the blocks?

A. Yes; it had that effect—that is, it was to separate them.

C. Q. 15. How quick will concrete of the kind used by you set, under ordinary circumstances, so as to stand by itself andallow the work to be proceeded with?

A. It will vary anywhere from fifteen minutes to half an hour, as all cements are not alike, though of the same brand.

C. Q. 16. After the first block was formed did you proceed with the formation of the next block before the first block was set, or how?

A. The first block would be set. We generally took a course across the walk, and by the time we had completed the course the frames could be removed from the blocks first laid.

C. Q. 17. How much adhesion would there be between the abutting edges of the first and second blocks?

A. I have no means of knowing what the advantages would be.

C. Q. 18. You could not tell, then, whether it would adhere to any appreciable extent or to an extent that would make a solid union between the edges or not, could you?

A. Yes, sir; from experience in taking up some of those old sidewalks at a later date I found that the blocks would move very readily from each other without very materially fracturing or breaking their regular shape.

368 C. Q. 19. And this whether you used tarred paper between the edges or interposed nothing between them?

A. Yes, sir; by using the parting strip it seemed to have kept the top surface all right.

C. Q. 20. You don't mean to be understood, do you, that if the abutting edges of the two stones had been firmly united the entire depth below the parting strip that the parting strip alone would make a separation?

A. I think that the fact of using the parting strip or making the cut would have caused the stone to break at that point if there had been any upheaving or frost below.

C. Q. 21. In your judgment, then, if that parting strip had been placed and used on a line through the center of the block first formed after it had set, the two blocks would separate on the center of the first block sooner than on the line of the non-adhering edges between the first and second blocks; is that so?

A. No, sir; I don't think they would. I think the first block would be broken at the place where you put the parting strip sooner than any other place in that same block, but not as easily as where the two blocks are formed together. By displacing the frame from the first block you leave a smooth surface on the edge of the first block. In making the second block the union will not be so solid.

C. Q. 22. Would not the blocks break at this union, whether the parting strip was used or not?

369 A. I think they would break there, but I do not think the top surface would break as regularly as if there had been a cut there, or something to cause an abrasion of the top surface.

C. Q. 23. Your idea, then, is that by the use of the parting strip you can control to some extent the regularity of the line of break, and that is all. Is that so?

A. Yes, sir.

C. Q. 24. And that the break will come between the blocks, whether the strip is used or not?

A. No; I don't think so—that is, it might break there, but not regular. I think its tendency would be to flaw in on one side or the other, so that it would be an irregular break. My reason for thinking so is from having seen blocks that were raised by frost or moved or removed from various causes.

C. Q. 25. What will prevent the blocks from breaking between their non-adhering edges, as you have just stated?

A. My idea in regard to their not breaking straight without the parting strip would be this: That in making the block it is made in two parts which differ in quality. The first two inches or three is made out of coarse material, with a very small proportion of cement—say, one to five or seven—consequently not being so strong as the coating that follows, which is made of fine sand and cement, half and half, and being from a half inch to three-quarters, and very strong.

370 If there were no parting strip used and no marking over that line formed by the frames, it being softer, it would adhere or be more cohesive when the finish of the second block was put on, so that the two edges would unite strong enough to cause it to break irregularly. That is the reason, or at least one reason, why I used the parting strips—to overcome those difficulties.

C. Q. 26. My question was not as to any effect of the parting strip in making a straight break, as you had already answered that, but was whether the break would not come between the non-adhering edges of the blocks, whether the strip was used or not.

A. I think that the two blocks would separate more readily than at the center of either one. I think that is the weakest place.

C. Q. 27. And the natural tendency of the blocks is to separate at the weakest place, whether marked or not, is it not?

A. Yes, sir.

C. Q. 28. When did you first see an artificial stone pavement as made by Mr. Hurlbut?

A. I think it was as early as 1873 or 1874. I think there were other parties making those kind of sidewalks before I saw his made.

C. Q. 29. How does the manner of laying concrete pavements as practiced by Mr. Hurlbut compare with the manner which you used in laying concrete walks and pavements. Is it the same or different?

A. I think it is a little different.

C. Q. 30. In what manner was it different?

371 A. We used the parting strip that I have mentioned before—a piece of zinc on a piece of wood—and Mr. Hurlbut used, in what I saw, a piece of wood that had rubber strips that were placed on the edge of the block after the edge had been trimmed straight with a trowel. I believe he used a little different-shaped frame from what we did. His frames were beveled and ours were straight, with a lug on them for the purpose of making a lock joint. Otherwise I don't know that his process differed from ours. In laying flags we used a straight frame, and when we came to finish off the top course we cut into the top surface with a trowel to leave the edge square, and then placed a parting strip on the top surface to work up against with the next block. I don't know as I ever saw Mr. Hurlbut lay any flags.

C. Q. 31. With the exception of the frame and the form of parting strip the process used by you and that employed by Mr. Hurlbut were the same, then, were they?

A. I think so.

C. Q. 32. Who instructed you in the art of laying concrete in pavements and walks, as practiced by you?

A. I don't know as I could say who I learned from. I employed men who had worked for other parties and I saw other parties laying those sidewalks. I saw Mr. De Crete or his men laying it. I watched his men to see how they laid it, whereby I got an idea of the construction of the frames. He used tarred paper between the joints and I adopted this parting strip, which was suggested

372 to me by a man by the name of Ingalls; and I adopted a frame with a lug on it for the purpose of making a lock joint, which was also suggested by Mr. Ingalls, which I think he claimed to have a patent on. I saw the same work done by a Mr. Perkins or his men before I did any of it. The composition suggested itself by the manner I made artificial stone. I don't know that that differed from others, unless it was in the proportions; the ingredients were the

same. I used whiting to produce very light stone. I do not know whether Mr. Hurlbut used whiting or not.

C. Q. 33. With a locking joint formed by a lug as used by you, or a beveled frame as used by Mr. Hurlbut, would it be an easy matter to remove the blocks separately without breakage?

A. Yes, sir; by beginning at the outer end you can pick up any stone. I have done it frequently.

C. Q. 34. Could you do so by beginning at the center instead of the outer edge?

A. With the lock joint such as I speak of, I think it would be rather a difficult matter to raise up a single stone without breaking some part of it. With a beveled stone I could not say, as I have never raised one, so I don't know what there is to hinder, or what resistance it would show.

C. Q. 35. If the marking line were drawn a half an inch in from the division or timber line, in your judgment, would the separation of the blocks show on the mark line or on the division line?

A. I think it would break at the timber line, but I think
373 the break would show on the marking line; I think it would scale over where it was only half an inch. I still think the weakest point would be on the timber line, where the distance was not over a half an inch.

C. Q. 36. Your idea is that by making a mark on the top you can control the line of break in the same manner as a blacksmith cuts both sides of a bar of iron, thereby weakening the bar at that point so as to break more readily and evenly than if uncut, is it not?

A. To a certain extent, yes, sir. There are other reasons why a stone would break more readily at the timber line than anywhere else more than the mere fact of making that cut over the timber line.

Redirect examination by Mr. HEY:

R. D. Q. 1. Go on and state the other reasons.

A. All the material is brought up against the frame, producing a even, smooth surface, there being no interlocking of material, the next stone being laid up against that smooth surface. Then the top course being put on, being of softer material, will unite more readily, making it necessary to use a parting strip or cut down through to correspond with the line already produced by the first material being placed together.

R. D. Q. 2. Then, as I understand you, the lower course of the stone, having but little cement in its composition, does not have much binding or cohesive power, and that the tendency to adhere comes from the rich upper course, which you say is from one-half to three-quarters of an inch in thickness?

A. Yes, sir.

R. D. Q. 3. A slight cut of, say, from one-quarter or one-eighth of an inch would control the breaking?

A. Yes, sir; that, as I understand it, is the object of creasing it or cutting it.

CHAS. E. HALL.

Adjourned to Friday, July 20th, 1883, at ten o'clock a. m.

374 AMOS H. PERKINS, a witness produced, sworn, and examined on the part of the complainants, deposes and testifies as follows in answer to questions by Mr. HEY:

Q. 1. Have you been examined heretofore on complainants' *prima facie* case as a witness?

A. I have.

Q. 2. Are you familiar with the nature and action of plastic concretes in the cement pavements described by you in your former deposition?

A. I am.

Q. 3. In pavements constructed by the defendant is the foundation course of the same composition and material as the upper course? Please describe the lower course.

A. The lower course is composed of sand and gravel and Portland cement, sometimes varying from one part of Portland cement to from five to ten parts of sand and gravel.

375 Q. 4. What is the upper course composed of and the proportions?

A. Sand and Portland cement; sometimes one part of Portland cement to one of sand; sometimes two of Portland cement to three of sand, and water in each mixture.

Q. 5. In a pavement made by the defendant, two and one-half inches thick, how thick would the lower course be and how thick the upper?

A. The lower course generally would be two inches, with half an inch on top of fine material.

Q. 6. In two adjoining blocks made by the defendant, which of the courses of material would have the greatest tendency to bind together or adhere?

A. The top course.

Q. 7. Mr. Hurlbut and his witnesses testify that after two adjoining blocks are completed a straight edge is laid on top of the blocks over the timber line and a cut made with a trowel or V-shaped marker about an eighth of an inch in depth. Do you know what effect such cutting or marking has? If yea, please state.

A. It controls the breaking, if any, if any material is left to break in the joint that is not cut.

Q. 8. Am I to understand that the defendant cuts through the upper course in some of his pavements?

A. In what I have seen of his men laying pavements in different parts of the city, most generally their intention is to cut through the fine stuff or top course.

376 Q. 9. Does such cutting effect the separation of the blocks, so that it can be readily seen when such pavements are examined?

A. It does.

Q. 10. Have you recently examined pavements constructed by the defendant which enabled you to state positively in this regard?

A. I have.

Q. 11. What did you find that shows a positive separation in defendant's pavement, and where was such pavement?

A. Where a settling has occurred where those pavements have been laid, one block sinking below the other and showing a clean square joint. There are many places in the city where I have observed it. One place not over a half block from my house I saw recently.

Q. 12. Will you produce a photograph of one of those pavements showing where a block had settled and allow the same to be attached to your deposition here?

A. I have one here taken from the front of Nos. 221 and 223 Ontario street.

Complainants' counsel offers the same in evidence, with the request that it be marked "Complainants' Exhibit Perkins' Photograph."

Q. 13. How does the defendant regulate the place where the trowel mark should come between the blocks?

A. By marking on the inside and outside where the timber line was, so that after the fine top course is troweled off to cut over the timber line through the fine material.

377 Q. 14. Have you recently examined a pavement made by the defendant in which such guide marks are yet visible? If yes, where and when did you examine it?

A. I have examined such a pavement laid in front of 3171 Groveland Park avenue to-day and find the marks or guides where the timber line was or is yet on the stone curb, both inside and outside of the edges of the pavement.

Q. 15. Will you produce here to-morrow a photograph of such pavement and allow the same to be annexed as a part of the record in this case?

A. I will produce to-morrow a photograph of pavement 3171 Groveland Park avenue, and also of 3162 same street.

Cross-examination by Mr. BOND:

C. Q. 1. You have had considerable experience in laying concrete pavements, have you not?

A. I have.

C. Q. 2. Beginning when?

A. Fifteen years in asphalt and Portland cement concrete pavements.

C. Q. 3. That would be since 1868, would it not?

A. It would.

C. Q. 4. During that time you have become very familiar with the nature and action of concrete plastics such as are commonly used in laying pavements for walks, etc., have you not?

A. I have.

378 C. Q. 5. In laying concrete walks or pavements it is the general custom and has been to lay the first block or stone and allow it to set somewhat, remove the timber forming the frame or mould to the distance required for the next block, and then form the next block between such timber or mold and the set edge of the first block, has it not?

A. Yes.

C. Q. 6. And it has also been the custom in laying such walks or pavements to make the block or stone of two courses, the bottom course coarse and a fine upper course?

A. It has ordinarily.

C. Q. 7. From the nature of concrete so used in laying pavements and walks is it not a fact that less adhesion occurs in the line between the abuting edges of the stone set and the next stone formed, for the reason that such concrete sets, as a usual thing, quickly, and the two compositions are in different plastic conditions, and will not unite as strongly and firmly as where the plastic conditions of both are the same? In making your answer you can state as to the complete stone.

A. In forming the stone we always instruct the men, as far as they can, to place the finer portion of the coarse concrete, which is composed largely of sand, next to the joist or timber line which is to separate the stone being formed from the next to be formed against it, so that it will make a smooth, firm edge. Stone formed as above I don't consider has much more adhesion than two bricks placed solid side by side.

379 C. Q. 8. Your experience, then, leads you to the conclusion that between two stones formed of plastic cement there will be no adhesion to speak of from the nature of the material used?

A. The lower course is what I refer to.

C. Q. 9. How is it in this respect for the complete stone?

A. The top course of half an inch, or many times as thin even as a quarter of an inch, being so much richer and stronger by the amount of cement used, has a tendency to adhere very strongly.

C. Q. 10. In the pavements laid by defendant how does the composition used by him compare with that used by you?

A. I have the same mixers and finishers work for me that have worked for defendant, and they generally make it according to instructions of the man they are working for. Of course, I could not state just the proportions he uses, but ordinarily we use about the same.

Adjourned to Saturday, July 21st, 1883, at 10.30 a. m.

380 SATURDAY, *July* 21*st*, 1883.

Met pursuant to adjournment.

Present: As before.

Cross-examination of Mr. PERKINS resumed:

C. Q. 11. The composition used by defendant being ordinarily the same as that used by you, the same conditions as to adhesion between the stones would occur with defendant as you have stated occurs with you, would it not?

A. Naturally it would.

C. Q. 12. With defendant's stone, then, you do not consider that the lower course has much more adhesion than two bricks placed solid side by side. Is that so?

A. It is to a certain extent. Two bricks have naturally a smoother surface than the two stones alluded to being placed side by side, while the stone being formed one against the other in a plastic state naturally the gravel from the latter stone becomes dovetailed or embedded to a certain extent into the other without necessarily any adhesion.

C. Q. 13. Your idea, then, is that there is practically no adhesion between the stones of the material, but an interlocking to some extent from the embedding of the gravel. Is that so?

A. Practically there is none.

C. Q. 14. There would then be, would there not, a clean line of separation between the stones, so far as the material itself was concerned?

A. In the bottom course practically there would.

C. Q. 15. And the stones naturally separate on this line, do they not?

A. Ordinarily; if they were taken up they would invariably separate at those points.

C. Q. 16. In laying this concrete pavement having a coarse lower course and a fine upper course the timber against which the
381 block or stone is formed is left in place until the block is completed both by you and by the defendant, is it not?

A. Generally.

C. Q. 17. And the line formed by this timber extends through both courses, does it not?

A. Practically it does; and if it does not a trowel cut is generally made through the fine stuff or top course, after this second block is formed, corresponding with the timber line.

C. Q. 18. The trowel cut, then, is simply for the purpose of dividing the upper course on the timber line to have the separation follow that line in both courses, it doing so naturally in the lower course; is that so?

A. It is for the purpose of separating.

C. Q. 19. How deep a cut, in your judgment, is necessary to effect this result?

A. It is owing to the thickness of the top course. Ordinarily the top course, being a half an inch in thickness, would only require a mark or cut from a sixteenth to an eighth of an inch, but ordinarily it is cut from a quarter of an inch to clear through the surface.

C. Q. 20. From your experience, where would you say the weakest point would be in a pavement or walk of concrete as laid by you and by the defendant?

A. Most certainly where one stone was formed against the other.

C. Q. 21. And that is the timber line, is it not?

382 A. Yes, it is; but a weak place can be made at any point by cutting from the top partially through the stone while in a plastic state.

C. Q. 22. Where would you consider the weakest point in the top course to be?

A. Where the joint was made against the other stone.

C. Q. 23. And that is on the timber line, is it not?

A. It is.

C. Q. 24. The lower course being separated on the timber line, and the upper course being weakest on this line, where would you say the separation would occur naturally?

A. On the timber line, certainly.

C. Q. 25. And this separation would occur naturally on this line, whether the upper course was marked or not, would it not?

A. It would occur over the timber line, but not so straight as is governed by a mark or cut.

C. Q. 26. How does the practice of laying concrete pavement as now laid by you and the defendant compare with that practiced by you in 1868?

A. It is not the same; not by me.

C. Q. 27. In what respect do they differ as practiced by you in 1868 and at the present time?

A. In pavements laid by me until the last five or six years I used a strip of tin or zinc, which formed the separation between the blocks and was withdrawn when the blocks were finished.

C. Q. 28. Was this the art as practiced by you in 1868 in laying pavements?

A. I have said that I was engaged in laying asphalt and
383 Portland cement pavements for the last fifteen years, but until about 1874 or 1875 I laid those without any separation; I lay the asphalt pavements to-day without any separation.

C. Q. 29. As I understand you, you first laid asphalt and concrete pavements in a solid mass instead of separate blocks. Is that it?

A. I said so before.

C. Q. 30. When laid in a solid mass any cracking that occurs will be very irregular, thereby disfiguring the job, will it not?

A. Yes.

C. Q. 31. And by laying in separate blocks you obviate to a great extent this irregular cracking by reason of the liability of the blocks to separate on the timber line, did you not?

A. Yes, sir.

AMOS H. PERKINS.

Counsel for complainants offers in evidence the two photographs referred to by Mr. Perkins in his answer to direct question fifteen, and the same are marked, respectively, "Complainants' Exhibit Perkins' Photograph of No. 3171 Groveland Park Avenue" and "Complainants' Exhibit Perkins' Photograph of No. 3162 Groveland Park Avenue."

It is stipulated by defendant's counsel that the three photographs offered in evidence by complainants and marked and referred to in the deposition of Amos H. Perkins are correct representations of the pavement in front of the respective street numbers by which they are identified.

384 A photograph marked "Complainants' Exhibit Perkins' Photograph."

A photograph marked "Complainants' Exhibit Perkins' Photograph of No. 3171 Groveland Park Avenue."

A photograph marked "Complainants' Exhibit Perkins' Photograph of No. 3162 Groveland Park Avenue."

(Here follow photographs marked pp. 385, 386, & 387.)

388 Depositions of A. Faber du Faur, John J. Schillinger, John H. Stark, and John H. Stark recalled, in words and figures as follows, to wit:

389 *Complainants' Evidence in Rebuttal.*

Circuit Court of the United States, Northern District of Illinois.
In Equity.

JOHN J. SCHILLINGER *et al. against* J. B. HURLBUT.

Present: G. W. Hey, Esq., for complainants; O. W. Bond, Esq., for defendant.

A. FABER DU FAUR, sworn for the complainants, deposes and testifies as follows:

390 FRIDAY, *August 17th*, 1883.

Direct examination by Mr. GEO. W. HEY:

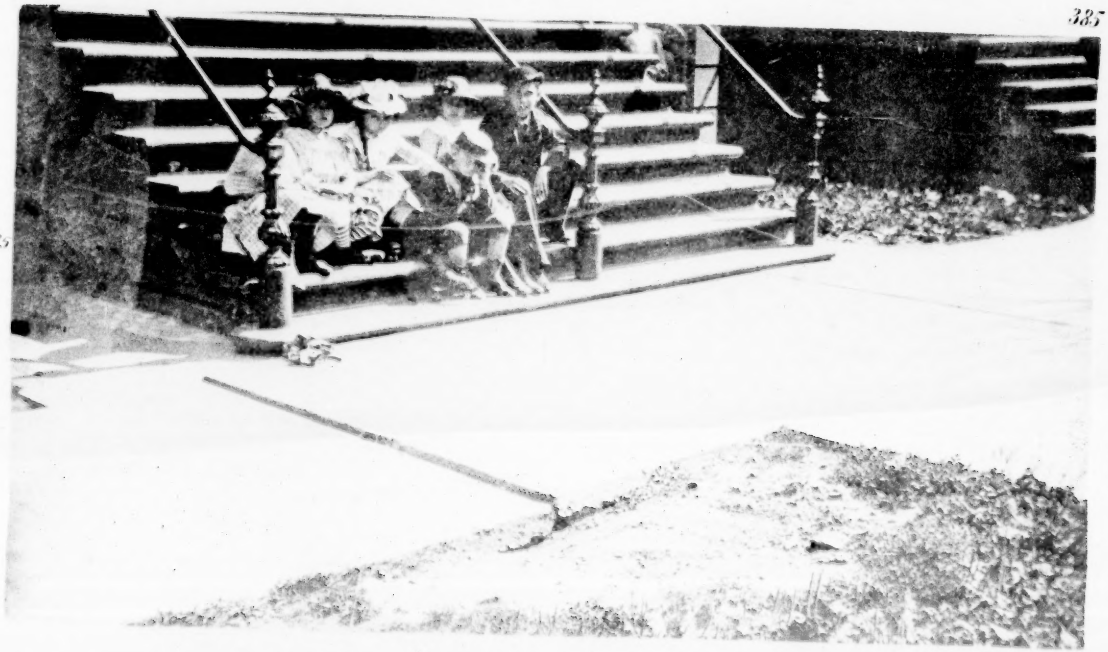
Q. 1. What is your name, age, occupation, and place of residence?

A. A. Faber du Faur; fifty-seven years; engineer, metallurgist, and expert in patent causes; Newark, N. J.; during the last fifteen years principally engaged as expert in patent causes; my office is at number 93 John street, New York.

Q. 2. Please briefly describe how you have qualified yourself as an expert in patent causes.

A. I studied at the polytechnic school at Stuttgart, in Germany; I graduated for the government since in Wurtemburg; have been employed for a number of years as assistant superintendent of government iron works in Wurtemburg, and have also traveled over parts of Germany, France, Belgium, and England for the purpose of perfecting my knowledge in the technical arts. During the last thirty-two years and over I have practiced my profession in this country and have had charge of various manufacturing establishments; have built a blast furnace for the New Jersey Zinc Company; put up the first furnace for Balbac & Son, at Newark, New Jersey; had charge of iron works in Pennsylvania and in Virginia; have for a number of years been engaged in the Government service on engineering works under Generals Meigs and Franklin; have also been assistant engineer on the defences of Washington during the war, and during the latter part of the war was
391 assigned by General Meigs as special agent in the third division of the quartermaster general's office; for the last fifteen years I have had an office in this city. I have during this time been frequently consulted on patent matters, have made a

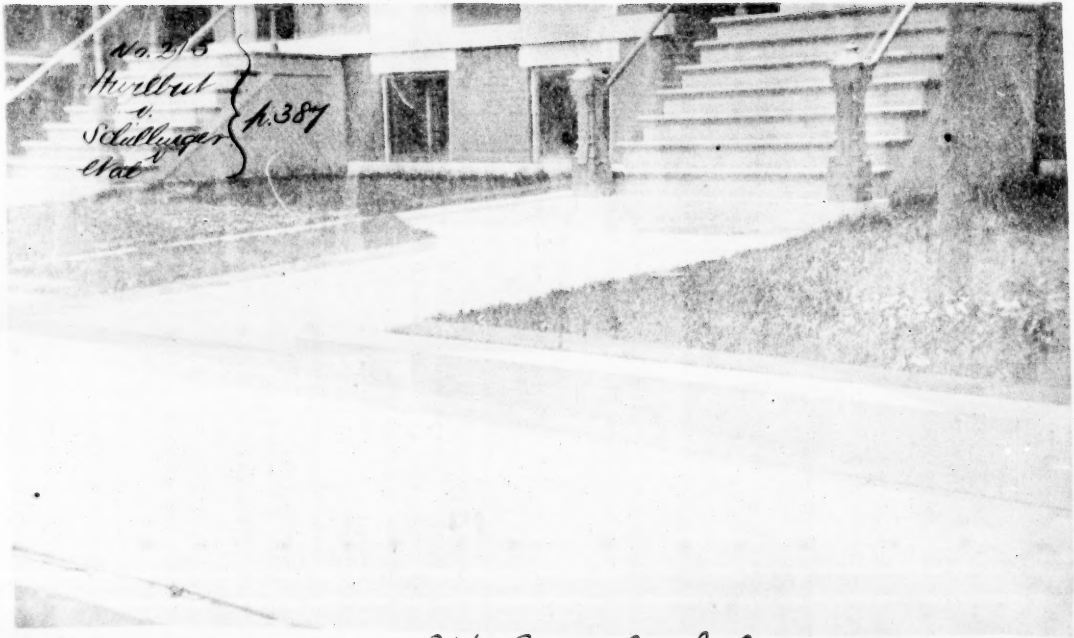
No. 215
Hurlbut
v.
Schillinger
et al
p 385



221 + 223 Ontario St

No. 215.
Hurlbut
v.
Schilbinger
et al
} p. 386

3171 Groveland Park ad



3162 Grooeland Park av

great number of searches, and have given testimony in a large number of patent causes. I have patented several inventions of my own and derived benefit therefrom. I am a member of the American Institute of Mining Engineers and also of the American Society of Mechanical Engineers.

Q. 3. Are you familiar with what is known as the Schillinger concrete pavement, also with the reissue letters patent therefor, and have you given testimony in relation to such patent and pavements?

A. I am familiar with the pavement and the patent, and I have given testimony in Schillinger *vs.* Gunther and in other cases referring to such pavement.

Q. 4. Have you examined and are you familiar with the various exhibit patents introduced by the defence in this case as Defendant's Exhibit "Chesneau" Patent, Defendant's Exhibit "Haichois" Patent, "D'Harcourt" Patent, "Claridge" Patent, "Coignet" Patent, "Russ" Patent; also Exhibit "Van Camp" Patent?

A. I have examined copies of the patents referred to, and I believe I understand the inventions described and shown therein.

Q. 5. Please compare the devices shown and described in
392 the said patents with what is shown and described in the complainants' patent, "Complainants' Exhibit Schillinger Patent," and state the result of such comparison.

A. I have made the comparison, and I do not find in any of the exhibits the invention shown and described in complainants' patent and referred to in the claims of the same. The pavement described in the "Claridge" patent is not a concrete pavement and is not formed in detachable blocks like the Schillinger pavement. This pavement (Claridge), as stated in the specification, is made of asphalt and bitumen—by preference, asphalt from Pyrimont, which contains about 90% of carbonate of lime and 10% of bitumen. The Claridge patent does not describe any pavement made in detachable blocks and made of concrete, nor is the asphaltum pavement described as laid in detachable blocks. It is true that the specification of the Claridge patent states that in forming ways or paths the hot asphalt mixed with fine gravel and sand is poured in between iron bars at convenient distance from each other, say from three to four feet, but the specification also states that—I now quote—"As the operation proceeds the surface of the cement already set renders the use of one end of the iron bars unnecessary." It is thus evident that this asphalt pavement was to be made continuous, like other asphalt pavements which I have seen laid in this city and other places, and that it was not to be laid in detachable blocks.

The D'Harcourt patent does not refer to concrete pavement
393 laid in detached blocks or sections; it refers to pavement made of resin, linseed oil, or tallow, whiting or chalk well pulverized, all thoroughly mixed and incorporated with one another by heat, afterwards picked oakum and other fibrous substances mixed in. To make artificial marble this composition is mixed with pulverized whiting and natural marble of different colors, broken into small pieces, and the mode of applying this composition

so as to produce an artificial marble suitable for tesselated or other pavements is stated to be substantially as follows: The ground is first covered with the artificial marble composition to about one-fourth intended thickness; the design or pattern desired to be given to the pavement is formed in zinc or tin moulds or frames of three-fourths of the depth of the first layer or foundation; the metal frames or moulds are removed from the designs when hard and dry and used over again; the material when applied, being hot and of a bituminous character, will necessarily unite with the already formed material and will not form detached blocks or sections, nor is there any reference to the interposition of anything while a new block is formed against an already formed block. It is stated that then the surface is made perfectly smooth and to the eye perfectly homogeneous. A varnish or gum lac may be passed over it. From this it follows that the pavement is not intended to have even the appearance of detached blocks.

The "Chesneau" patent refers to pavements made of small pieces of iron and a cement made of resin, Roman concrete, and
394 resin of linseed oil or any other sort of bitumen, the ingredients being heated in an iron cauldron and then spread on the road intended to be paved in a uniform thickness. As it would be necessary to break the pavement for the purpose of placing gas and water pipes, panels are made, which are not fully described in the specification and not shown by any drawing. It would appear that these panels are to give access to certain places to gas and water pipes, but the description is indefinite. I do not find in the "Chesneau" patent, shown and described, any concrete pavement laid in detached sections or blocks substantially in the manner shown and described in the complainant's patent, nor do I find the arrangement of tar paper or its equivalent between adjoining blocks of concrete, as and for the purpose set forth in complainants' patent

In the "Coignet" patent I do not find the invention shown and described in the complainants' patent and referred to in the claims of the same. The "Coignet" patent refers to certain improvements in the use and preparation of plastic materials or composition to be used as artificial stone, or as concrete or cement for building and other purposes. The specification gives different compositions of the plastic materials which are to be mixed by machinery; also gives a short description of a method of casting this material in a mould established on the wall itself or on a place where the work of masonry is to be built. The mould has in the interior the shape of the intended building. When the mould is filled it is dis-
395 jointed and brought to any other place to fill it again, or it may be only disjointed after the concrete has become hard in the mould. By the use of concrete and moulds buildings are to be erected either solid or hollow, and the specification states "by the moulding of the concrete in the wall I am enabled to form a monolith building, whatever may be its mass, height, or disposition," which means that the whole should form one mass.

The specification also describes the method of forming floors from concrete between iron stop planks or iron rods, substantially similar

to the method of forming fire-proof floors in buildings with iron beams or fire-brick arches or the like. In building this flooring the specification states a false flooring is arranged below which has the form intended to be given to the under part of the floor. This is not a concrete pavement built on the ground like that shown and described in the Schillinger patent and referred to in the claims of the same. In the "Haichois" patent I do not find the invention shown and described in the complainants' patent. The "Haichois" patent describes the forming of a pavement from lime, sand, asphalt, caoutchouc, gutta-percha, and marine glue and wood, the bottom course, to the thickness of about five inches, being composed of lime and sand, and the top courses of asphalt and strips or bands of vulcanized caoutchouc or gutta-percha or other analogous substances of about one inch in thickness and from one-half to three
396 quarters of an inch in breadth, secured together by iron hooks or ties. Instead of using hooks, the strip may be bevelled at the edges so as to be firmly imbedded by and secured by the asphalt. The description is rather indefinite and no drawing is attached to the specification, but the specification certainly does not describe a concrete pavement laid in detached blocks or sections or the arrangement of tar paper or its equivalent between adjoining blocks of concrete, such as in complainants' patent.

The Russ patent refers to a concrete foundation for a stone pavement, which concrete pavement is not formed in detachable blocks, but is only at certain places provided with removable panels for the purpose of giving access to water-pipes or other purposes. On the top of the concrete foundation the pavement proper is constructed from granite or sienite. I do not in the Russ patent find the invention referred to in complainants' patent.

The "Van Camp" patent refers to concrete pavements made of stone, gravel, and asphaltum. When these ingredients are thoroughly mixed by heat the composition is spread at the place where the same is to be used and properly laid by hot rollers. Along railroad tracks and immediate vicinity of points where frequent removal is required, it is proposed to lay blocks prepared from the same composition. The blocks are formed in molds; they are then allowed to cool, when, if the molds have been properly sanded before, they can be readily removed. It is also stated in the specification
397 that, if desired, *that* the blocks need not be removed from the molds, but the pavement laid with blocks firmly cemented in the molds. I do not, however, find it stated that such blocks should be formed on the spot where they are to remain, nor that such blocks should be formed of Portland cement and gravel or sand. The Van Camp patent does not disclose the invention referred to in complainants' patent.

Q. Are you familiar with the nature and action of plastic concretes of the character described by Schillinger in constructing his patented pavement?

A. I believe I am.

Q. 7. I now refer you to interrogatory seven and answer thereto of defendant's expert, Mr. Bates, at pages 10 and 11, defendant's

record; also to cross-interrogatory twenty-seven and answer, on p. 19 of said record. Please read carefully the said reference and state whether you agree or differ with the opinions expressed by Mr. Bates, giving reasons for such opinions as you may give.

A. I do not agree with the opinions expressed by Mr. Bates. Mr. Bates states that the process is identically to that of Exhibit "Claridge" patent. The "Claridge" patent does not state that the iron bars are to be left in; on the contrary, it states that as the operation proceeds the surface of the cement already set renders the use of one of the iron bars unnecessary; thus, in the Claridge process nothing is interposed between the blocks while in the process of formation. Besides, the Claridge patent does not describe any method or process of forming pavements from concrete made of Portland
398 cement and sand, or sand and gravel, mixed with water; it does, on the contrary, only describe the pavement made from asphalt or bitumen compositions, which is applied hot.

Mr. Bates states that the defendant's pavement was marked with a trowel to give it the appearance of flagging. It is impossible for me to positively state what the object of the defendant was in thus marking the pavement with a trowel, but, as far as the effect was concerned, I am satisfied that such marking applied to a pavement in the manner stated would substantially have the effect of making the pavement a flagging—that is to say, by inserting a substance, namely, a trowel, between the top dressing of the two adjacent blocks while in a plastic state, and in or above the line where the bottom course joins, a joint will be formed through which the blocks will be parted wherever there is any strain brought on them. Mr. Bates states that defendant's pavement is exactly like the pavement which Schillinger disclaims in his disclaimer, formed of blocks from plastic material without interposing anything between their joints while in the process of formation. A trowel cannot make a mark without being interposed between two adjoining blocks. In answer to the twenty-seventh cross-interrogatory Mr. Bates states that the cut with a trowel between the two blocks over the timber line in the defendant's method would not control the cracking at the joint. I have examined pavements made in this manner, and I have
398½ found that such cuts made over the timber line will cause the blocks to separate or crack in a straight line along the cut, while where there is no such cut above the timber line they are apt to crack in irregular lines. The witness Bates finds defendant's pavement to be entirely different from Schillinger's invention. In this I do not agree with him. On the contrary, in my opinion, defendant's pavement is fully within the scope of the Schillinger patent as repeatedly construed by the courts. It is constructed of substantially the material from which the Schillinger pavement is made. It is formed between joists substantially in the manner by Schillinger, and a substance is inserted between the adjoining blocks while the material is in a plastic state, so as to separate the pavement in blocks whenever sufficient strain is brought to bear on them. It is true that the substance inserted is not inserted to the whole depth of the material and is withdrawn after having effected

the separation, but this I do not consider material so long as any substance is inserted at all.

Q. 8. If it were conceded that the pavement shown in complainants' exhibit, Perkins photograph of defendant's, on Ontario-street pavement, was constructed in the manner described by Mr. Bates, how would such action of the blocks affect the views expressed by Mr. Bates in his opinion and with those expressed by you?

A. It would show that the views expressed by Mr. Bates are wrong, and would fully confirm the opinion expressed by
399 me in answer to the last question, and would be in accordance with my experience with pavements of the same kind.

Q. 9. I now refer you to interrogatory six of Mr. Bates' deposition, on page 9, and ask you first to examine the models referred to by Mr. Bates and to state your views in regard thereto.

A. The Defendant's Exhibit "Claridge" Model and the condition in which I find it does not represent what is described in the Claridge patent and referred to by Mr. Bates on page 8 of defendant's proofs. There ought to be no iron strip or bar between two adjoining blocks, because, as Mr. Bates acknowledges on page 8, when the first block is set one of the bars is moved along and a fresh lot of concrete is poured between it and the previously formed block, etc.

I do not believe that Defendant's Exhibit "D'Harcourt" Model correctly represents what the inventor attempted to describe in that part of the specification on p. 182 of defendant's proofs, and partly quoted by Mr. Bates at bottom of page 7 and top of page 8. I am satisfied that the inventor intended to place the moulds and to remove the metal frames in such a manner that spaces would be left which would be filled up by the composition, and that no open joints would be formed. I am confirmed in this opinion by the following statement in D'Harcourt's patent: "When the surface is made perfectly smooth and to the eye perfectly homogeneous a varnish of gum lac may be passed over it." Now, a perfectly homo-
400 geneous surface is not one with open joints, as shown in the model and as described by Mr. Bates on page 8 of defendant's proofs.

The Defendant's Exhibit "Chesneau" Model would appear to represent the pavement made up altogether of apertures for gas and water pipes, nothing being shown of a pavement proper. As I understand a very indefinite description of the Chesneau patent in reference to those man-holes, this was not the intention; on the contrary, the pavement was to be made in one body and of a material containing resin and linseed oil while hot, in a uniform thickness of one or two inches, and wherever access was required to water or gas pipes some kind of frame was to be used which was bound with iron bands and screws, the bands being wide enough to admit of a portion projecting beyond the surface of the panel, according to the thickness of the paving. I don't believe that the model answers to the indefinite description in the specification. The model certainly does not correctly represent the relative proportions, since they should only be as thick as the pavement (which is one or two inches

thick) and should be three feet long and two feet wide, more or less. The model, Defendant's Exhibit "Chesneau" Model, shows an open joint between the two square frames there indicated, which open joint may be more convenient, but cannot be found in the Chesneau patent. No drawing being attached to the Haichois patent, and the specification being rather indefinite, I cannot tell how far Defendant's Exhibit Haichois Model may represent one of the modifications of the Haichois pavement, which is made of asphalt and gutta-percha or caoutchouc, the hot asphalt being caused to adhere to the caoutchouc strips by first applying the thin coat of marine glue or other similar substance to those parts to be placed in contact with the asphalt. The specification of the Haichois patent states that the strips of caoutchouc should be embedded in and secured to the asphalt during the cooling of the latter. This is not shown in the model where the strips are bevelled on the lower side and embedded in the bottom foundation, instead of being beveled at the edges so as to be firmly embedded in and secured by the asphalt, as required by the specification.

401

Direct examination finished.

Adjourned to Saturday, August 18th, at 10.30 a. m.

SATURDAY, *August 18th*, 1883.

Cross-examination by Mr. BOND:

C. Q. 1. As described in the specification of his patent and summed up in the claims thereof what do you understand the same to be?

A. The Schillinger patent refers to pavements made by mixing cement with sand, gravel, or other suitable material and with a sufficient quantity of water to render the mixture plastic. This mass is spread upon the foundation between moulds or movable joists of the proper thickness in such a manner that when one block has set sufficiently the joist or partition is removed and the next block is formed against the previously formed block. Between the joints of the adjacent blocks strips of tar paper or other suitable material are placed, so that the pavement is substantially divided into blocks of any desired form, and such subdivision is plainly shown on the surface of the pavement. The inventor states that "in such cases, however, where cheapness is an object the tar paper may be omitted and the blocks formed without interposing anything between the joints, as previously described." This part has, however, subsequently been disclaimed by the inventor, and the invention is therefore restricted to such pavement where something has been interposed between the joints.

402

The first claim of complainants' reissued letters patent were first of concrete pavement laid in detached blocks or sections, substantially in the manner shown and described. In my opinion it is not necessary for a pavement to be laid substantially in the manner shown and described to have tar paper or any other substance inserted throughout the whole depth of the joint, or that such ma-

terial should be permanently inserted, so long as the blocks are formed in the manner stated, and that something is at least temporarily inserted to part of the depth between two adjoining blocks, whether permanently or temporarily, so as to distinctly mark the joints on the upper surface and to favor the parting of the blocks in such marked line, and to prevent, as far as possible, breaking in irregular lines.

403 The second claim refers to the arrangement of tar paper or its equivalent between adjoining blocks of concrete, substantially as and for the purpose set forth. All I have said in regard to the first claim and in reference to the interposition of something between the adjoining blocks refers also to the second claim, the disclaimer only referring to such pavement where absolutely nothing is interposed. When anything is interposed between adjoining blocks formed in the manner specified in the patent and is interposed temporarily only, I do consider it the equivalent of tar paper referred to in the second claim.

C. Q. 2. Please quote from the specification of the Schillinger patent the language authorizing the temporary insertion of any material between the blocks.

A. I quote from the second claim which forms part of the specification of the complainants' patent: "The arrangement of tar paper or its equivalents." I am confirmed in my opinion as to the temporary interposition of something to be an equivalent to the tar paper by the opinions of the courts in Schillinger *vs.* Gunther and in Schillinger *vs.* The Greenway Brewing Company.

C. Q. 3. What do you understand to be the meaning of the words "the arrangement" as usually applied to mechanics?

A. It is very difficult to give a general definition. In the narrow sense it would refer to a specific combination of parts co-operating in a specific manner, while an arrangement substantially like some other arrangement would not necessarily be identically the same.

404

C. Q. 4. Your idea, then, is that when an inventor claims "the arrangement" of certain specific devices he don't mean "the arrangement" which he shows and describes, but any arrangement of the devices, no matter what the result may be?

A. I do mean that the inventor would claim the arrangement which he shows and describes and such equivalents as he would be entitled to by the prior state of the art, and what he would be entitled to in any specific case is a question of law and not for an expert to decide.

C. Q. 5. It is the province of an expert, is it not, to point out, if he is able to do so, the invention which is shown and described and summed up in the claims of a patent?

A. Certainly; yes; it is in the province of an expert to state what is described in a claim and to state how the elements recited are described in the rest of the specification. It is also in the province of an expert to state what he considers substantially as and for the purpose of the reasons matter referred to in the claim and to give his for any opinion he may express. His opinion, however, is not

a legal opinion and is only to assist the court so far as the reasons given are sound.

C. Q. 6. Is it your idea of the province of an expert in construing a patent to so construe it as to broaden the scope of the actual invention?

405 A. I don't think it is, but there may be a difference of opinion as to what the actual invention is, and then the courts have repeatedly defined an invention. I suppose it is the duty of an expert to adopt such construction of the scope of the invention.

C. Q. 7. When an inventor who is supposed to know what his invention consists of describes a certain part of his invention as being a permanent fixture, would you consider it the province of an expert to construe the words substantially when found in the summing up or claim as meaning that that permanent part was to be entirely removed or not used at all?

A. It is impossible to give a general rule, but in some cases it may be the meaning and particularly when the courts have repeatedly so construed it.

C. Q. 8. Would it make any difference, in your opinion, in the laying of the Schillinger pavement, as described in the patent, if the joist or partition strips were of iron or of wood?

A. I don't think it would make any difference, except that as a general thing iron would be very inconvenient.

C. Q. 9. Inconvenient by reason of its weight, or what?

A. If made of dimensions, such as they ought to be for convenient handling, iron would be too heavy, and where pavements of different dimensions are made it would be rather expensive. I be-

406 lieve Gunther at one time used flat iron for the top dressing of pavement, to which the suit of Schillinger *vs.* Gunther referred.

C. Q. 10. Supposing a metal parting strip of half an inch thick was used in place of the wooden parting strip described in the Schillinger patent and in the manner provided for in the patent, would not the process of laying, so far as the parting strips are concerned, be the same?

A. It would.

C. Q. 11. Now, if a party should lay concrete pavement using either wooden or metal parting strips and after laying the first block, instead of moving the strip back lay the next block, should leave that strip in and use another strip forming the next block between the two strips, would you consider that the process of laying the pavement described by Schillinger in his patent?

A. I believe it would be the process, provided the material employed would be actual concrete—that is to say, a composition of cement and sand or sand and gravel and water, as described in the Schillinger patent.

C. Q. 12. It is immaterial, then, in your opinion, whether the permanent tar-paper strips are omitted and a concrete simply laid between the partition strips and the partition strips left permanent, instead of being moved back, as provided for in the patent, so far as

the process which Schillinger describes for laying concrete is concerned?

A. It is not altogether immaterial, because it makes a great difference, as far as labor is concerned, whether a solid joist is taken
407 which can be readily placed on the ground and secured or whether a narrow strip is taken which wouldn't stand up by itself, and which in most cases would probably have to be used in connection with the joist. The only difference between the two processes would then be that in one case the block is formed against the material to be interposed and such material left in its position after the joist is removed and the next block is formed against it; while, as described in the Schillinger patent, the tar paper or its equivalent is placed against the free edge of the block already formed and then the next block formed against it. The method described by Schillinger is certainly the better one, but if I properly understand the hypothetical mode of construction referred to in the question it is substantially the process referred to in the Schillinger patent, although the result produced would perhaps not be the same. I have not previously considered this hypothetical construction, but I do not believe that the intention of Schillinger was to produce a pavement which by wear would soon present hard bridges. The cement would probably wear off faster than the iron strips. A thick wooden strip would be rather objectionable, and it is evident that the intention of Schillinger only was to make very close joints, such as have been formed by tar paper or its equivalent and such as have frequently been formed by the temporary interposition of a trowel.

C. Q. 13. As my question did not go to the labor required,
408 nor as to whether the pavement would be good or bad, nor as to the interposition of a trowel, but simply as to the process of laying, I will again ask you whether in your opinion it was the intention of Mr. Schillinger to provide for the removal of his interposed tar paper, and instead of removing his partition strip back leave it in place under the description given by him in his patent?

A. I cannot swear, of course, as to what Mr. Schillinger's intention was, and cannot state what different modifications or variations of his process he may have had in view, but I can only repeat what I have stated before, that in my opinion he is not restricted to the specific thing described, but is entitled to equivalents. How far, however, he is entitled to claim any specific modification is a question of law to be decided by the courts.

C. Q. 14. That is the best answer you can give me, is it?

A. I don't know. I might perhaps continue for a whole day in reference to this hypothetical case, supposing, first, the question means this and then that, but as the whole thing amounts to a question of law I don't think my answer would be improved any.

C. Q. 15. Schillinger describes his process of laying in substance as follows: After laying the first block between two partition strips, then moving one of the strips back after the first block has set, then laying the next block, and so on, with a further condition of inter-

posing tarred paper between the two blocks, and you have
409 stated that it would be immaterial whether the partition strip were iron or wood, except as to their convenience of handling, and Claridge in his patent states that the first block is laid between two strips of iron, then when the block is set one strip is moved back and the next block formed, and so on. So far as the actual process of laying by the use of partition strips, is not the Claridge and the Schillinger the same?

A. If the question is restricted to the process of moving back the strip after the space between the strip and either another strip or material already laid, then this is substantially the same as what one part of Schillinger's method is, but it is not the Schillinger process.

C. Q. 16. When a prior patentee describes a process and a subsequent patentee comes forward and describes the same process, you consider, then, do you, that the two processes are not the same, but only substantially the same?

A. Before I can answer this question I should prefer to be informed whether it means that the process described by the prior patentee was redescribed in all its details by the subsequent inventor or whether the subsequent inventor described only part of the prior process, together with new matter, the whole forming a new process.

C. Q. 17. You consider it necessary, then, do you, in order to answer the preceding question to know whether the processes are the same when they are stated in the question as being the same?

410 As I am unable to comprehend your theory on this point I will ask you, If two parties describe the same process which one would you consider the inventor—the prior or the subsequent patentee?

A. If the two processes are identically the same, then the prior patentee is generally considered the inventor; also sometimes in interference cases it is found that the subsequent applicant is actually the first inventor, in which case he will get the patent.

C. Q. 18. Claridge in his patent having described a process of laying walks by the use of strips by forming the first block between two strips, then moving one strip back after the first block is set, then forming the next block between the strip and the set block, what invention would there be in a subsequent inventor after many years to take that process and follow it?

A. Before answering this question I must remark that the description given of the Claridge alleged process is not that given in the Claridge patent, but that the words "block" and "forming the first block" and "forming the next block" are not taken from the Claridge patent, which simply describes the process as follows: "In forming ways or paths I usually proceed thus: Upon a proper foundation I place two flat iron bars parallel to each other and at a convenient distance from each other, say from three to four feet. These bars are of the thickness to which the mastic cement or composition is intended to be spread, usually about half an inch thick. Between these bars the fluid mastic and fine gravel or sand,
411 mixed as aforesaid, is poured and spread and the surface made

regular and uniform by passing a thick piece of wood with one straight edge backwards and forwards upon the iron bars. Upon this surface, while still in a semi-fluid state, I usually sift fine, hot gravel, which I beat into the mastic with wooden stampers. When the mastic is set the operation is repeated until the surface required for the way or path is covered. As the operation proceeds the surface of the cement already set renders the use of one of the iron bars unnecessary." It doesn't follow from this description that blocks are formed, but when making ways or paths it is, of course, impossible with ordinary means to cover a long stretch at once, and therefore a smaller space is set off and the material is down, an adjoining space is set off and the hot bituminous material placed down against that already formed. It is in the nature of bituminous material in a semi-fluid state to firmly adhere to the material previously laid down and not to form separate blocks. If a subsequent inventor didn't do anything but what is described in the Claridge patent, then, of course, there would be no invention. On the other hand, I don't believe there is a patent in the United States which doesn't show or describe something which has already been described, patented, or known. Generally the inventions are combinations of well-known devices or well-known processes. A process may be old with the exception of one single step. The one single new step in combination with what is old and well known may constitute a valid invention.

412 C. Q. 19. Conceding that all that you have stated to be true as the foundation for an argument, I will ask you to state, as between Claridge and Schillinger, so far as the partition strips alone are concerned, if Claridge is not entitled to the full benefit of laying walks by the use of a partition strip to — moved back in the progress of the work.

A. I suppose that Claridge is entitled to carry out what he described in his patent. He has a perfect right to move the strips back in the manner described by him, and making the kind of pavement described by him, which is substantially pavement made of the composition of asphalt and bitumen or mineral pitch mixed with other substances and applied, when in a semi-fluid state, by heat.

C. Q. 20. Your theory, then, is that Claridge, being the first to use partition strips by moving one strip back as the work progresses, would only be entitled to the use of that strip in connection with a certain mixture which he describes; is that correct?

A. I have not worked out any theory about this matter. I have only taken into consideration two facts, viz., that whatever Claridge has described in his British patent of eighteen hundred and thirty-seven must be considered public property in this country, and that Claridge does not describe the invention referred to in complainant's patent. Of course if Claridge should come to this country he

413 would be at liberty to construct what he has described in his patent in the manner there described, but this would not entitle him to appropriate subsequent inventions.

C. Q. 21. One of the features of the Claridge patent which would be public property in this country is the form which he describes

of laying down the work by moving a partition strip back, is it not?

A. As far as what is disclosed by the Claridge patent is concerned, this only relates to the laying of pavements with a bituminous hot semi-fluid material, and this is all that would be considered public property.

C. Q. 22. The hot semi-fluid material and the manner of laying it, then, is public property, while the devices which Claridge used would not be; is that your meaning?

A. The devices, as far as I understand it, are only strips, and such strips might be used, in connection with material, where the feasibility and practicability of its use would not be natural, as suggested by the Claridge patent, and would require experiments.

C. Q. 23. You think, then, that the feasibility and practicability of using the Claridge strips with other material would require experiments to use them with such material notwithstanding that Claridge has described how they should be used with one material, and their use in each case would be the subject-matter for an invention?

A. I have not positively asserted either one thing or the
414 other. I have only suggested that there may be an application where, by the use of substantially old means, a new result may be reached, and that such application would not be anticipated by the Claridge specification.

C. Q. 24. It is the use of the strips, then, and not the strips themselves which would be public property; is that what you mean?

A. Of course anybody would have the right to have strips. I think I have had strips long before the Claridge patent, and the use of such strips is public property, except in such connection where the use may be covered by patents. In most every patent devices are used which have been long known and which are public property, and yet the use of such devices, in a certain manner and in certain combinations, are covered by United States patents, and it is no use to argue whether a certain device is old when that device of itself is not a patented thing.

Cross-examination of Mr. Faber du Faur adjourned to Monday, August 20th, at 9.30 a. m.

MONDAY, *August 20th*, 1883—9.30 a. m.

Cross-examination of Mr. FABER DU FAUR continued:

C. Q. 25. Schillinger in his specification states while his mixture is plastic he lays or spreads the same on the foundation or bed of the pavement, does it not?

A. These are substantially the words in the specification.

415 C. Q. 26. Claridge also states, does he not, that he pours and spreads his mixture on a proper foundation?

A. He does.

C. Q. 27. Schillinger states that his mixture is spread or laid between movable joist of the proper thickness?

A. He does.

C. Q. 28. Claridge also states, does he not, that he pours and

spreads his mixture between two flat iron bars of the thickness intended for the mixture?

A. He does.

C. Q. 29. Schillinger states, does he not, that when the first block has set he removes the joist or partition between it and the next block to be formed and forms the next block, and so on?

A. He does, substantially.

C. Q. 30. Claridge states, does he not, that when his mastic has set the operation is repeated until the surface required for the way or path is covered?

A. I find substantially this statement in the Claridge patent.

C. Q. 31. Do you understand that it was the intention of Schillinger to use both partition strips in laying his succeeding blocks after the first one had set or to dispense with one of such partition strips?

A. I do not think that Schillinger restricted himself to any specific use of the partition strips, and that very frequently he did form blocks without any partition strips and between two blocks previously formed.

416 C. Q. 32. You think, then, that when Schillinger states "when the first block has set I remove the joist or partition between it and the next block to be formed" it was no restriction to a specific use of such strips.

A. I do mean to say that, in my opinion, it is not necessary that in forming a new block a strip shall be used again if the space to be taken up by the new block is already fully confined either by a previously formed block or by one or more blocks and curbing or other surroundings of the pavement. Of course, where the block already is not fully enclosed a strip or strips must be used.

C. Q. 33. Please quote from the specification the language authorizing the statement in your answer following the word "again," in the third line.

A. I do not find the language in the patent, but I believe that the words substantially in the manner shown and described or substantially as and for the purpose set forth, found in said patent, fully authorizes such a statement, since any man of ordinary intelligence would have to acknowledge this is substantially as shown and described.

C. Q. 34. It is your opinion, then, that when Schillinger provides specifically for the removal of the joist or partition and says nothing in his specification about confining the blocks between the curb and one or more blocks previously formed the words "substan-

417 tially in the manner described" would cover the formation not described by Schillinger. Is that so?

A. If the question only refers to what I have previously stated—that is to say, if it refers to formations substantially described—then the words quoted cover it. If, however, the question refers to any formation not described, then my answer is that it does not necessarily cover it.

C. Q. 35. When Schillinger states "when the first block has set I remove the joists or partitions," and when he says "substantially in

the manner shown and described" your opinion is that the words "substantially in the manner shown and described" have no bearing whatever on the positive statement that the strips are to be removed, but mean that it is to be left optional whether you remove the strips or not?

A. I did not make any such statement. The inventor is not compelled to describe all possible modifications of his method after describing one practical method of carrying out his invention. Whether modifications not described in the patent are substantially what is shown and described or not is a matter of opinion. If, for instance, a strip of tar paper or its equivalent were so secured that the first block could be formed against it and the strip left in its place, the fastening only being removed and the next block then formed against it, I should consider this substantially as described.

C. Q. 36. As my question went to the removal or non-removal of the strip or partition as being provided for by the words
418 "substantially in the manner shown and described" in the Schillinger patent, you would not consider the statement in your answer about the use of tar paper a volunteer — on your part would you?

A. I do not consider it as volunteered. I think I have a right to make any statement for the purpose of explaining what I meant to say, particularly when the modification of which I have been speaking has nothing to do with the specific method in controversy.

C. Q. 37. Applying this same rule, the words "renders the use of one of the iron bars unnecessary," found in the Claridge patent, what would you consider a modification of that language?

A. I can imagine, for instance, one modification. Suppose a stretch of pavement is laid between two sets of parallel lines of curbstones and then beginning at one end with a bar equal to the distance between the two parallel sides, then only one bar will be required for the first part. If the pavement be subdivided by pairs of parallel bars and the space between such parallel bars filled with material in the manner stated, all the bars then removed and the remaining spaces then filled with the semi-fluid hot material, I should consider this a modification producing substantially the same result—that is, an uninterrupted stretch of pavement of mastic material produced by substantially the same means.

C. Q. 38. By the words found in the Claridge patent "renders the use of one of the iron bars unnecessary" would you under-
419 stand that Claridge intended to use both bars under some circumstances?

A. Of course. At the beginning, as described, two bars have to be used, and after the start is made only one will be required, because the face of the materiai already formed will make the use of a bar there unnecessary.

C. Q. 39. By the words "I remove the joists or partitions." found in the Schillinger patent, do you understand that Schillinger intended to use both partitions under some circumstances?

A. I think he may use even more than two partitions at the same time if he wants to do quick work.

C. Q. 40. There is, then, in your mind a big distinction between the word "remove" and the words "renders the use of unnecessary," the word "remove" authorizing the use of even more than two partitions, while the other language found in the Claridge patent requires only one to be used after the work has started?

A. Of course there is a difference between the words "remove" and "renders the use of unnecessary." That the rest of my statement in the question entirely misrepresents what I have previously stated follows from my answer to the thirty-seventh question, where I have referred to a modification of the Claridge method using a number of pairs of parallel bars.

C. Q. 41. Schillinger spreads his mass on the foundation, and Claridge does the same. Schillinger spreads it between two strips, and so does Claridge. Schillinger waits until the first mass
420 is set before proceeding with the next operation, and Claridge does the same. Schillinger provides for the removal of the strips, after the first mass has set, before laying the next block, and Claridge states that the setting of his mass renders the use of one of his bars unnecessary, and you have stated in substance that both Schillinger and Claridge could use a number of strips or bars as a modification. Is it on these grounds that you find no similarity between the Claridge process and the Schillinger process in contradiction to the finding of Mr. Bates in considering these two patents?

A. No. I do not remember having stated that I find no similarity between any particular steps in the two operations. What I have stated is, as far as I can remember, that in the Claridge patent I do not find the invention shown and described in the Schillinger patent and referred in the claims of the same, and I have given my reasons for this statement.

C. Q. 42. So far as the steps named in the preceding question as being found in the Claridge and Schillinger patents, and as modified by you in respect to the use of the strips or bars, the several steps named in both patents and set forth in the preceding question are the same, are they not?

A. They are the same, except that Schillinger takes concrete and Claridge mastic cement or composition.

C. Q. 43. Claridge states when the mastic is set, and Schillinger says when the first block is set, and in this respect of "set-
421 ting" the two compositions are alike; that is, both Claridge and Schillinger say that their respective compositions will set?

A. There is, in my opinion, a great difference in the setting of a bituminous material and the setting of a cement. A bituminous material of the kind described in the Claridge patent sets by cooling, and will soften again by heating or by contact with a hot body, while the setting of the cement, which is mixed with water, is a chemical action, and when the cement is well set it will not be softened by water again. The similarity in the two cases is that in both cases the setting will prevent the material from spreading out when the retaining bars or joists have been removed.

C. Q. 44. The setting in both cases is due to the nature of the

materials used and not to any discovery of the respective patentees, is it not?

A. It is.

C. Q. 45. Referring to the D'Harcourt patent, does not D'Harcourt use a fluid or semi-fluid mixture?

A. He does. The material is rendered fluid or semi-fluid by heat.

C. Q. 46. D'Harcourt also states, does he not, that the design or pattern desired is formed in zinc or tin moulds by pouring in his fluid composition?

A. He does, substantially.

C. Q. 47. D'Harcourt also states, does he not, that "soon as the contents of one set of patterns or design is hard and dry the
422 metal frames or moulds are to be removed and a further portion of the pattern proceeded with?"

A. He does.

C. Q. 48. After the frames or moulds are removed, under D'Harcourt's plan, the edge of the designs from which the pattern were removed would be hard, as he states, and consequently set, would it not?

A. It would.

C. Q. 49. And the patterns or designs for the next set are run in their moulds or frames with the side of the mould or frame between the new pattern being formed and the pattern already set?

A. I find no such statement in the specification of the D'Harcourt patent.

C. Q. 50. What do you find in the D'Harcourt patent in this regard?

A. I find an incomplete specification without any drawings, and, as I understand the specification, it is clear that D'Harcourt intended to produce a pavement whose surface is made perfectly smooth and to the eye perfectly homogeneous, as stated in the specification, and this result will be produced by forming a number of scattered designs, such as squares or detached stars, in moulds and then filling up the space between by the main composition.

C. Q. 51. Please quote from the D'Harcourt specification the language which authorizes the last statement of your preceding answer in regard to scattered designs and filling in the spaces.

423 A. I have already stated that the specification is incomplete and does not in specific terms explain how this perfectly homogeneous surface is produced.

C. Q. 52. The Schillinger specification you regard, do you not, as being clear in its description as to how the next block is to be laid after the first block is set?

A. I think it is clear, as far as the specific method described is concerned.

C. Q. 53. Will you please quote from the description given by Schillinger, which you consider clear as specifying the manner in laying the second block?

A. "When the first block has set I remove the joists or partitions between it and the block next to be formed, and then I form the second block, and so on, each succeeding block being formed after

the adjacent blocks have set;" also, "between the joists of the adjacent blocks are placed strips of tar paper or other suitable material in the following manner: After completing one block, *a*, I place the tar paper *b* along the edge where the next block is to be formed, and I put the plastic composition for such next block up against the tar-paper joint and proceed with the formation of the new block until it is completed."

C. Q. 54. From the language quoted, how do you understand the second block is made or set?

A. The joist is moved forward so as to set off a new square or block; tar paper is placed against the edge where the next block is to be formed, and the block then finished in the usual way.

424 C. Q. 55. Please quote for me the language in the statement quoted by you in your preceding answer, authorizing the statement in your last answer that "the joist is moved forward so as to set off a new square or block."

A. By the quotations already given, by the following statement in Schillinger's specification, viz: "While the mass is plastic I lay or spread the same on the foundation or bed of the pavement, either in moulds or between movable joists, so as to form the edges of the concrete blocks *a a*, one block being formed after the other;" and by the drawing attached to the Schillinger patent I feel fully justified in my statement. Of course, according to circumstances the method must be modified, the principle always remaining the same.

C. Q. 56. Please quote me the words by which, from the statements you have quoted, you find that Schillinger states that the joist is moved forward, so as to set off a new square or block.

A. I have already stated that these exact words are not in the specification, and I will now add that I don't mean to say that the identical joist removed should be used over in forming one block after the other so long as one block is formed against the other substantially in the manner specified.

C. Q. 57. What manner is specified in the specification for the use of any joist at all in setting the second block, and so on?

A. The specification states that the blocks are formed between movable joists, one block being formed after the other. It

425 also states that after one block, *a*, is completed tar paper *b* is placed along the edge where the next block is to be formed, and that the plastic composition for such next block is put up against the tar-paper joint. In my opinion, this, together with the rest of the specification and the drawing attached thereto, gives full instructions to a man skilled in the art for making the pavement and for finishing the blocks in any desired order.

C. Q. 58. You think, then, that because the specification states that the blocks are formed between movable joists and also because it states that tar paper is placed along the edge where the next block is to be formed and the plastic composition for such next block is put up against the tar-paper joint instructs a party skilled in the arts to move a joist forward to set off the next square or block? If not, please quote the words for instructing a workman so to do.

A. I did not say that it was absolutely necessary to move the joist forward. There are so many different conditions that one specified case will not do for all; for instance, the drawing of the Schillinger patent shows a large block, *a*, and a small block, *a*, so placed together that they may be formed between two parallel joists in the following manner: A short joist is placed between the two long joists so that the large block *a* can be formed; the small joist is now taken out and after tar paper is placed against the edge *b* and the small block *a* is now formed. The adjoining blocks *a* may now be formed

426 in substantially the same manner by moving the long joist at the edge one space forward or by simply taking out this joist and using another one. Instead of doing this one set of large and small blocks may be first omitted and the succeeding set formed in the same manner like the first set, in which case the intermediate set may then be formed without any long joist, using only one short joist. All of this is, in my opinion, substantially according to the Schillinger specification.

C. Q. 59. As there is no joist shown in the Schillinger drawing, to which you have referred, but only tar paper, will you kindly quote for me the language of the specification which authorizes the use of long and short joists in the manner you have stated in your last preceding answer?

A. I can't quote such a statement, but in my opinion the patent does not restrict the invention to any specific arrangement of the joists, as the invention referred to in the claim does not refer to the arrangement of the joists. Any mechanic of ordinary intelligence with the specification and drawing of the Schillinger patent ought to be enabled to carry out the invention, although two different workmen might perhaps not proceed in exactly the same way.

C. Q. 60. So far as the drawings are concerned an ordinary mechanic would not get much light as to the use of joists at all, would he?

A. Not without a specification.

C. Q. 61. Will you now please quote for me the light which

427 an ordinary mechanic would obtain from the specification for the use of joists after the first block had been formed?

A. I quote from the specification as follows: "While the mass is plastic I lay or spread the same on the foundation or bed of the pavement, either in molds or between movable joists of the proper thickness, so as to form the edges of the concrete blocks *a a*, one block being formed after the other." This clearly shows that not only the first block but all the blocks are to be formed between enclosures. I further quote: "When the first block has set I remove the joists or partitions between it and the block next to be formed, and then I form the second block." Now, since it is clearly stated that the blocks are to be formed between joists, and when it is also stated that against the edge from which the joists have been removed tar paper is placed and the plastic material for the next block is put against the tar-paper joint, it would require a workman of extraordinary stupidity not to see how this ought to be accomplished in any special case.

C. Q. 62. Your explanation is very clear as to the use of tar paper as specially provided for by Mr. Schillinger, and the inference is fair that the joists or partitions are to be removed and the tar paper used in place thereof between the joists, but I fail to perceive any specific instructions are derived therefrom as to how the joists are to be used for forming a second block, as Schillinger simply states in this regard, "When the first block has set I remove the
428 joist or partition between it and the block next to be formed, and then form the second block." Is there any other language than this and that you have quoted as to laying the concrete generally that would indicate or instruct any one what to do with the joist in laying the second block?

A. This is all the instruction I find, and I do consider it fully sufficient.

C. Q. 63. You, however, consider D'Harcourt description too insufficient, notwithstanding that D'Harcourt clearly describes how to lay one set of patterns and designs and states that after they are dry and hard "the metal frames or moulds are to be removed and a further portion of the pattern proceeded with, and so on to the outer border or edge of the piece of pavement or parquetry to be formed." Is that correct?

A. I do consider it insufficient for reasons stated in previous answers.

C. Q. 64. The reason is as definite in your opinion as is your reason for stating that the joists for the second block in Schillinger's is moved to set off the next square or block—that is, Schillinger don't describe such moving of the joists in terms, nor does D'Harcourt state that his metal frames or moulds are to be replaced after being removed in position to form the next pattern or design. If this is not your reason, please explain why Schillinger is clear and definite in this regard and D'Harcourt is not.

A. I can only say that I consider my reasons good, and I
429 deny that Schillinger does not describe the removal of the joists sufficiently, since he clearly states, "When the first block has set I remove the joists or partitions between it and the block next to be formed, and then I form the second block," and since a drawing also is attached to the specification. My reasons for calling the D'Harcourt specification indefinite I have fully explained.

C. Q. 65. What particular benefit is the drawing in the Schillinger patent as to the removal and use or non-use of the joist in forming a second block, no joist being shown in the drawing?

A. The drawing will at once suggest in which case or cases the surroundings will allow joists to be dispensed with. As far as I am concerned, I think I could fully understand the whole specification without the drawings. Others may want a drawing to understand it, and there may be some who will never understand it with both drawing and specification.

C. Q. 66. As I understand it, then, you are able to understand from a drawing in which a device is not shown just how that device is to be used.

A. I didn't say any such thing. I said I could understand the specification without the drawing, and I may add that when an invention is of such a nature that a specific method of proceeding does not form part of the matter claimed it is not necessary that a drawing should show that part which, together with the part which is actually shown and with the specification, is already fully explained.

430 It follows from the specification of the Schillinger patent that joists had been laid where tar paper or joints between adjoining blocks are shown. The drawing consequently indicates sufficiently where the joists had been.

C. Q. 67. The language used by D'Harcourt would indicate that the metal frames or moulds are to be removed before proceeding with a further portion of the pattern.

A. That is so.

C. Q. 68. Schillinger states that he removes his joists or partitions before forming the second block, does he not?

A. He does.

C. Q. 69. Neither of them speak in terms exactly what is to be done with the removed devices, do they?

A. None of them state what is to be done with them in exact terms. D'Harcourt's moulds may be melted up and Schillinger's burnt up, if they don't want to be economical and want to use new joist with every block.

C. Q. 70. And yet you think Schillinger is clear in these regards, so far as they relate to the forming of the second block, do you not?

A. I think he is.

C. Q. 71. After D'Harcourt has removed his metal frames or moulds from around one set of patterns or designs as provided for by him, what would be the condition of those patterns or designs as to being free?

A. I think they would be free.

431 C. Q. 72. If the next set of patterns or designs were laid adjacent to the first set and after becoming hard and dry and having the frames or moulds removed, what would be the condition of the two sets of patterns in relation to each other as to being joined or free at their adjacent edges?

A. They would then be free at their edges and would not be what is described in the D'Harcourt patent; they would not present the homogeneous surface as described in the patent.

C. Q. 73. What authority have you for the statement thus made by you as to the actual condition of the D'Harcourt pavement?

A. I quote again from the D'Harcourt as follows: "When the surface is made perfectly smooth and to the eye perfectly homogeneous a varnish of gum lac may be passed over it."

C. Q. 74. Gum lac being very strong and firm would naturally make a homogeneous mass out of fine, hard, and dry designs or patterns not united at their edges is what you mean, is it?

A. Not at all. I merely quoted what the specification says, and that merely states that the surface of the pavement is homogeneous before the gum lac is used.

C. Q. 75. A statement, then, in a specification using the words

"and to the eye perfectly homogeneous" means, in your judgment, that the hard and dry patterns or designs, made separate and free, are homogeneous simply because they have that appearance to the eye?

A. It doesn't mean that at all; it simply confirms my opin-
432 ion as to D'Harcourt's method of making pavement given in the direct examination. I do not understand the method suggested by the learned counsel but not described by D'Harcourt; but as I have a faint idea of what the learned counsel means to attribute to D'Harcourt, and believe that he means that the whole pavement should be made in moulds, one pattern after the other. Now, where molds are used draught would have to be given to moulds so as to be enabled to remove them; and it is readily seen that by such a proceeding there wouldn't be even an approximation to a homogeneous surface on the top, when, on the contrary, the pavement is laid as I understand it was to be done there would be no difficulty in that respect. The designed patterns, say, for instance, a series of stars, being formed upon the first layer or foundation of the artificial marble composition, the moulds are removed and the empty spaces between the designed patterns filled up with semi-fluid, hot composition. After the now so far completed pavement is perfectly hard the whole surface may be ground and polished, and will then present to the eye a perfectly smooth and homogeneous surface except as to colors.

C. Q. 76. If a party should lay a block of concrete, then lay the next block, with tar paper between the joints, very close and compact, and so on, for the full length of the walk and then smooth the material so as to present to the eye a perfectly homogeneous appear-
433 ance, you would consider that walk as being homogeneous under the construction you have given those words "to the eye perfectly homogenous," found in the D'Harcourt patent?

A. I should consider the surface as apparently homogeneous for the time being, but it would only take a very short time to show off the pavement in its own nature.

Cross-examination of Mr. Faber du Faur adjourned to Tuesday, August 21st, at 10.00 a. m.

TUESDAY, *August 21st*, 1883.

Cross-examination of Mr. FABER DU FAUR continued:

C. Q. 77. If a concrete were laid for a walk by forming the first mass between partitions and after it had set removing one of the partitions and forming another mass against the edge of the mass first formed, and so on, and then grinding or otherwise making the top surface smooth, could that construction be homogeneous?

A. It would be homogeneous to the eye on the top surface.

C. Q. 78. What would be its condition actually, in your opinion, in respect to being homogeneous?

A. The condition of the structure would depend very much on the nature of the concrete used and on the time elapsed between forming the successive masses. In some instances the material

would unite tolerably well on the joint, and in others not, so that there would be a difference in the degree of continuity.

434 C. Q. 79. If the mixture were placed or formed in an iron band or frame and the frame removed and replaced to form another section, would the pavement so formed be a sectional one or not?

A. I suppose it would, although the question does not fully describe the pavement.

C. Q. 80. Would that method of laying be within the scope of the Schillinger patent, as you understand it?

A. I can imagine such a pavement, laid so as to be within the scope of the Schillinger patent.

C. Q. 81. Supposing that a series of iron frames were placed upon a proper foundation and the mixture for the pavement were poured or spread in such frames, would you consider that method of laying as forming a sectional pavement?

A. It might be a sectional pavement according to circumstances.

C. Q. 82. Would you consider such a pavement so laid as being the Schillinger invention, as you understand said invention?

A. It might be; it might not; the description is too indefinite.

C. Q. 83. Please state when it might be and when it might not be the Schillinger invention, as you understand it.

A. I cannot know what the learned counsel had in mind when he very incompletely described the hypothetical pavement. I am not prepared to invent pavements, but to give opinions about specific matters laid before me. As soon as I am informed about all

435 the details of the pavement in question, I shall be ready to say whether I consider it to be the Schillinger invention.

C. Q. 84. You are not able, then, to pass upon the question as to whether a pavement formed of concrete and laid in a series of iron bands or frames, placed on a suitable foundation side by side, would come within the scope of the Schillinger patent, as you understand the invention set forth in said patent?

A. I would first remark that question 81 did not refer to concrete pavements in specific terms, but only to pavements made from some undefined mixture, nor had it been stated in question 81 that the forms were to be placed side by side, and I consider it altogether unfair to insinuate that the witness would not answer a question which he has not been asked. If the question refers to pavement made of the material substantially like the material referred to in the Schillinger patent, and if the frames are used for forming concrete pavement substantially in the manner shown and described in the Schillinger patent, then the pavement would come within the scope of the Schillinger patent.

C. Q. 85. Do you understand that the Schillinger patent only covers a definite mixture for forming his concrete?

A. I don't think it is restricted to the exact proportions, but it is in my opinion restricted as to the general nature of the mixture.

C. Q. 86. And that general nature to which he is restricted is what?

436 A. The material must be substantially like the mixture of

cement and sand and gravel without being confined to any definite proportions or materials of making the concrete composition, by which I understand that if, for instance, in place of gravel small pieces of broken stone were used, it would be substantially the same composition.

C. Q. 87. Then when Schillenger said, "but I do not confine myself to any definite proportions or materials for making the concrete composition," the meaning he intended to convey by the use of those words, in regard to the composition, was a restricted one, as you understand it?

A. It is restricted to what is generally called concrete.

C. Q. 88. But when he says, "In this manner I proceed until the pavement is completed, interposing tar paper between the several joints, as described," he did not intend to thus interpose tar paper, as you understand his invention?

A. The expressions "concrete pavement" and "concrete" are found in the first and second claims, respectively, of the Schillinger patent, while in regard to tar paper the second claim only states tar paper or its equivalent. That the inventor did not mean to restrict himself as to the tar paper really follows from the expression "or its equivalent." Besides the inventor having produced, in his patent beginning with "in such cases" and ending with "the adjoining blocks," certain matter relating to the entire omission of tar paper which he afterwards disclaimed in the following words, "Your petitioner hereby disclaims the forming of blocks with plastic
437 material without interposing anything between their joints while in the process of formation," it follows clearly from the various statements of the inventor that he does not restrict himself to the use of tar paper in the manner specified, and that his disclaimer only refers to interposing nothing at all.

C. Q. 89. Referring to the Haichois patent, what do you understand by the words "as asphalt does not naturally adhere to caoutchouc?"

A. It means exactly what it says, that Haichois goes under the impression that asphalt would not stick to caoutchouc without employing some means to make it stick.

C. Q. 90. If Haichois should omit or neglect to apply a thick coat of marine glue or other similar substance to those parts to be placed in contact with the asphalt, what would be the result as interpreted by the language which Haichois uses as to the adhesion?

A. I believe that Haichois is mistaken in his statement that asphalt would not naturally adhere to caoutchouc, but I have not made any experiments in this respect. If it didn't stick, the result would be that it didn't.

C. Q. 91. Will you consider a mixture of broken stone, hydraulic cement, sand, mixed with fresh water, as coming within the mixture provided for by the wording of the Schillinger patent?

A. I would, if made in such a manner that the pavement could be made of it.

C. Q. 92. If mason's chips or coal cinders or gravels or
438 grits were used in connection with sand, hydraulic cement,

and water, would such a mixture be provided for by the wording of Schillinger's patent?

A. Such materials, if properly selected and mixed, would form what is understood by the expression "concrete" in the Schillinger patent.

C. Q. 93. The removable panels referred to in the Russ patent are formed by running concrete into the panels, are they not?

A. They are.

C. Q. 94. And Russ states "the concrete is then to be filled in and consolidated, after which it may be lifted out of any panel or section, as may be required," does he not?

A. He does.

C. Q. 95. And he also states, does he not, that "the gutter stone *f*, hub stones *g*, and flagging of the sidewalk D may all be laid of panelled and divided sections of concrete in the same manner and with the same advantages and effects?"

A. He does.

C. Q. 96. Will the joint in the bottom course in nowise affect the cracking, without the assistance of a cut?

A. In pavement to which I suppose the question to refer the joint in the bottom course will, in my opinion, be apt to cause cracking in irregular lines without the assistance of a cut.

C. Q. 97. Do you consider a concrete composed of seven parts sand and one part cement, one possessing adhesive qualities that will cause two blocks, one formed after the other has set, to adhere in their adjoining edges with any great degree of tenacity?

439

A. I don't think it would be extra strong.

C. Q. 98. Such a concrete is substantially the one which Schillinger provides for making his blocks, is it not?

A. This is the upper limit of the figures given by Schillinger.

C. Q. 99. A pavement laid of such material as specified in the Schillinger patent, and not having anything interposed during the process of formation, would separate naturally and of its own accord at the division formed between the blocks, by reason of the non-adhesive quality of the materials, would it not?

A. It would as a general thing break in irregular lines at or near the joints.

C. Q. 100. Such separation would not be within the meaning of the Schillinger patent, would it?

A. I think that the disclaimer would exclude such pavement—that is to say, such pavement where nothing of any kind has been interposed.

C. Q. 101. And such a pavement would be free and clear of any claim of infringement of said Schillinger patent, would it not?

A. I suppose so, although I think it a question of law, to be decided by the courts.

C. Q. 102. In your opinion as an expert, however, a pavement so laid, and of the materials named—gravel, sand, and cement—would come within the disclaimer of the Schillinger patent?

A. It would come within the wording of the disclaimer.

A. FABER DU FAUR.

Complainants' counsel offers in evidence the copy of the record in the case of John J. Schillinger *vs.* The Greenway Brewing Company, with the request that the same be marked Exhibit "Greenway Brewing Company Record."

JOHN J. SCHILLINGER called.

Examined by Mr. HEY:

Q. 1. What is your name, age, residence, and occupation?

A. John J. Schillinger; fifty-two years; number 420 East 92d street, N. Y. city; manufacturer of artificial stone and fire-proof building material.

Q. 2. Are you the John J. Schillinger named in the patent and suit and one of the complainants here?

A. Yes, sir.

Q. 3. At the time Complainants' Exhibit Saulsbury License was made were you the sole owner of the State of Illinois under the patent?

A. I was.

Q. 4. Please state when you conceived the invention which forms the subject-matter of the patent and suit.

441 A. During the year 1869.

Q. 5. About what time in the year?

A. During the summer; about August.

Q. 6. Since the grant of your patent have you been engaged in constructing concrete pavements of the character described therein?

A. During the whole time I have.

Q. 7. I now show you Complainant's Exhibit "Perkins' Photograph," of No. 3171 Groveland Park Avenue, and I ask you to state, if you know, what the marks coinciding with the joint lines shown on the coping and curb are employed for.

A. These lines are made to point out the division between the joists and the lower or bottom concrete to indicate such a division after the top course has been spread over, and are generally used to hold the straight edge from point to point, and run along on that edge of the straight edge a trowel to cut the top course straight with the lower joint.

Q. 8. Are such marks commonly used in constructing concrete pavements where the joint is finished on top by a trowel or joint-cutter for the purpose you have described?

A. Sometimes they use a trowel, sometimes a joint-cutter, and sometimes both along that line. I usually use it for all garden work that way. Well, the marks have to be put there to indicate the place where the joints have to be made on the top, as the guide has been lost by covering over with the fine stuff, therefore we make the marks before we put on the fine stuff. I can show thou-

442 sands of such marks in this city which have been done by licensees working under my patent and paying me a royalty.

Q. 9. Supposing a pavement to be made by moulding the blocks in a scantling mould of, say, from to two and one-half inches of course material composed of seven parts sand and gravel to one part

cement, then the fine upper course of one part cement, one part sand, made plastic with water, and another block formed up against the completed block after the scantling is removed, and a straight edge laid across between the blocks directly over the timber or joint line, and the cut made in the upper course in the joint line with a trowel from a quarter to an eighth of an inch in depth; what effect will such cut have in the cracking when the blocks are moved by frost or settling of the foundation?

A. That will indicate a straight separation.

Q. 10. Will the cut control the cracking so the crack will follow the line of the cut, if the material used is good and properly mixed?

A. It will.

Q. 11. Supposing a pavement is made, as described, without any cut at all, the fine material of the upper course coming together smooth and even on top and of good material, how will frost or heaving and settling affect such a pavement?

A. If it cracks along the line where the joists have been laid for the lower course it will be irregular on top, and in many cases the crack will run across the line.

443 Q. 12. How do you know that? Have you ever constructed such a pavement; and, if so, where and with what result? State fully.

A. I have constructed such a pavement, in the fall of 1874, on Capitol grounds, in Washington, D. C., which pavement I took up the next spring on account of such irregular cracking.

Q. 13. And does your own experience fully confirm you in the views which you express here in regard to the action of the pavements described?

A. Yes, sir.

Q. 14. In the case of Schillinger *vs.* Gunther, decided by Judge Blatchford, in Gunther's amended answer, did you make the affidavits printed at pages 50 to 55 of complainant's record in such case?

A. I did.

Complainants' counsel here offers to read said record in evidence.

Complainants' counsel also offers in evidence complainants' record in Schillinger *vs.* Gunther. (Case before Judge Shipman.)

Complainants' counsel also offers in evidence brief of complainants' counsel in the above cases.

Cross-examination by Mr. BOND:

C. Q. 1. You have had considerable practical experience in the line of laying concrete for pavements and walks, have you not?

A. I did.

444 C. Q. 2. And you consider yourself thoroughly conversant with the nature of concrete so used, are you not?

A. Yes, sir.

C. Q. 3. When did you first commence to make youself conversant with the nature of concrete and its laying for pavements and walks?

A. The year before I took the patent.

C. Q. 4. Prior to 1869, then, you had no knowledge of the art in this regard?

A. I had knowledge of concrete then.

C. Q. 5. For how long a time prior to 1869 had you knowledge of concrete?

A. Since the time I was connected in the building line, about 1849.

C. Q. 6. What was the nature of the concrete of which you had knowledge at that time, and for what was it used?

A. Foundations, plastering of house fronts, and floorings. Its nature was sand, gravel, cement, and water, sometimes broken stone.

C. Q. 7. Was it the practice at that time to mix this concrete so that it could be spread or laid, and was it the custom to so spread and lay it?

A. It was.

C. Q. 8. After it had been spread or laid it became hard, did it not?

A. It did.

C. Q. 9. When laid for flooring what was the practice in laying in 1849?

A. I did not lay it myself and did not examine closely others doing it; I only saw them do it.

445 C. Q. 10. Please describe how you saw them do it—in what manner.

A. I saw them mix the concrete, which they called cement concrete, used for the above-stated work, without paying any particular attention to it.

C. Q. 11. You didn't see them lay it, then, but simply saw them mix it; is that so?

A. Yes; I saw people laying tiles made of that material, which were already made and brought to the place and laid down like brick-work or marble tiles.

C. Q. 12. Do you know how those tiles were made?

A. They were already made when I saw them, hard and dry; brought there from another place and laid down.

C. Q. 13. When you first commenced to practice laying concrete, in 1869, how did you proceed?

A. The first practice was done in the shop. I made building blocks and a specimen for a sectional sidewalk.

C. Q. 14. It was a specimen only?

A. I laid also floors in 1869 for brewers.

C. Q. 15. You laid no sidewalks, then, in 1869, but simply made a specimen, as I understand you?

A. I believe that is so.

C. Q. 16. When did you lay your first sidewalk or pavement made of concrete?

A. In the spring of 1870.

446 C. Q. 17. Please describe the nature of the mixture and the manner in which you laid it for the specimen of sidewalk made in 1869.

A. Same as I make it to-day.

C. Q. 18. As I am not aware how you make it to-day, will you kindly answer my preceding question?

A. Same as described in my patent.

C. Q. 19. As you have more than one patent, I believe, please give me the number and date of the patent to which you refer.

A. The first sidewalk patent was dated July 19th, 1870, reissued May 2d, 1871.

C. Q. 20. How was the pavement made by you in the spring of 1870 made and laid?

A. One was laid exactly like the patent describes it, with the interposition of tar paper, and the other was laid with the interposition of strips and cutting with a trowel.

C. Q. 21. What was the object of cutting with a trowel?

A. To make a division.

C. Q. 22. Would not the strips make a division?

A. I took the strips out.

C. Q. 23. After the strips were removed an opening must have been left; would that not have been a division?

A. I floated it over again with a trowel and cut it after.

C. Q. 24. How long at that time did you continue this manner of laying?

A. Which manner?

447 C. Q. 25. The manner of which you have last been testifying.

A. I never laid any again the same way.

C. Q. 26. When do you lay your next strip of sidewalk or pavement using tar paper between the joints, as provided for in the patents to which you have referred?

A. Ever since, continuous since that time, with the exception of garden walks. I never use tar paper for garden walks. I use joists for the bottom course and joint-cutter for the top; sometimes I do areas and court-yards that way, and the work in Washington I did that way.

C. Q. 27. In laying garden walks, what process or manner of laying did you use? Please describe fully.

A. I lay two long joists the whole length of the walk, then I lay lateral joists between the two long joists for every alternate flag; then I fill that bottom course first with coarse stuff about three inches, and then I put the top stuff on and smooth it off, then I make marks to indicate the joints on both sides, where they are so filled in with concrete, joints to joists; then I take away the joists and fill in between the two finished flags, first with coarse material and then with fine material; then I hold a straight edge across this walk where the joist has been laid and cut in the top course with the joint-cutter opposite the bottom joint.

C. Q. 28. After being cut, what would be the condition of the flags in relation to each other?

A. Sectional pavement.

448 C. Q. 29. When did you first apply this practice to use?

A. When I made the experiments, and in the spring of 1870.

C. Q. 30. How long did you then use it?

A. Ever since.

C. Q. 31. Why do you not use tar paper, as provided for in your patent, in the process employed by you for laying garden walks?

A. I consider this as an equivalent for tar paper, as provided for in my latest patent, and use it for narrower walks and cheap walks.

C. Q. 32. You have a patent, then, which describes and points out specifically the process used by you for laying garden or narrow walks, as you have described?

A. What I understand of the patent I have is the use of tar paper between the joints, or anything which answers the same purpose, to make an artificial joint or opening part or wholly of the thickness. I understand the patent that any portion of cutting is a part of my patent.

C. Q. 33. To which patent do you now refer?

A. To the patent in litigation in this case.

C. Q. 34. Please quote the language in that patent which describes and points out cutting as one of the features of the invention?

A. The word "equivalent" between the joints covers that part, as I consider the trowel used while in process of formation is the full equivalent of tar paper.

449 C. Q. 35. You think, then, that if you instructed the workmen to interpose a permanent strip of tar paper adjacent to the edge of a block already formed and before forming the next block by the words "equivalent between the block" that workmen would use a trowel and not interpose it until after the work was completed; is that correct?

A. I don't understand the question.

C. Q. 36. You understand, however, or seem to, that the words "equivalent between the blocks," found only in the second claim of your patent, means cutting, when no cutting is provided for in the body of the specification?

A. I understand the word "equivalent" as provided for anything used for the same purpose is an equivalent for tar paper. I could not think of all the thousands of things or modes which infringers may use in laying my pavement when I made the application for my patent.

C. Q. 37. What do you mean by the words "used for the same purpose" in your last answer?

A. Making a division while in process of formation.

C. Q. 38. But not making a division after the process is completed?

A. You can't make a division 24 or 48 hours afterwards; you can only make a division while the cement is plastic.

C. Q. 39. How about one hour afterwards?

A. In cold weather or in fall you might make it five hours afterwards.

450 C. Q. 40. After the pavement is completed, you mean?

A. Yes; with the exception of making the joints.

C. Q. 41. You could make a division, then, and not make a joint; is that what you mean?

A. You could leave only a division if you had something interposed.

C. Q. 42. Interposed when?

A. While in process of formation.

C. Q. 43. Interposed while in process of formation and not afterwards; is that what you mean?

A. I mean not after the concrete gets hard.

C. Q. 44. Your understanding of your patent in this regard is not very clear, is it?

A. I leave that to the court; I am not an expert in patent cases.

C. Q. 45. Does your patent provide for marking coinciding lines on the coping and curb with the joint line? If so, quote the language authorizing such marking.

A. My patent does not provide for anything outside the pavement, as these marks are outside the pavement only to indicate the joint in the pavement where it should be cut in divisions—one not described in the patent.

C. Q. 46. Does your patent describe the use of a straight edge for any purpose whatever?

A. I don't think I mentioned any straight edge in my patent; I use a straight edge sometimes.

451 C. Q. 47. Does your patent describe the use of a joint-cutter? If so, quote the language.

A. It does, in the word "equivalent," if the joint-cutter is used for the same purpose as tar paper.

C. Q. 48. You are positive, are you, that a cut will control the line of cracking, and that the crack will follow the line of the cut, irrespective of the joint line made by the timber?

A. A cut will in the most cases control it, as the cut does break the strength of the strongest part of the pavement. For instance, a granite block of three feet thickness the crack almost always follows the cut made in the top by chisels.

C. Q. 49. Does the timber line extend through the entire block when laid as described in direct interrogatory nine of your examination?

A. The timber is always the guide for the edge and for the surface of the pavement, and extends from the top to the bottom, and in some cases it reaches only from the bottom to the top of the coarse stuff.

C. Q. 50. Is the division between two blocks made by this timber line a distinct one and of such nature that the blocks will naturally separate on the line?

A. Without the cutting on top it will form in case of separation a zigzag or irregular line, and will not be accepted as a sectional pavement by any architect.

C. Q. 51. It will form a separation, however, will it not?

452 A. It will not form a separation without cutting on top.

C. Q. 52. How about the bottom?

A. I could never observe the bottom; I could only observe the top when I look at it.

C. Q. 53. For all that you know, then, the blocks when laid, as set forth in direct interrogatory nine, are united at the bottom?

A. They are united on the top, and as the bottom is made of a dry and coarse material it does not take adhesion in the bottom, except you bring fine material against it.

C. Q. 54. The material specified in interrogatory nine for the bottom is a mixture set forth in your patent, is it not?

A. As to the proportions, yes.

C. Q. 55. Where would the separation occur in this lower course—on the timber line?

A. Yes; if there was no top course, as it is the weakest spot in the concrete.

C. Q. 56. Is it not also the weakest spot in the top course?

A. In some cases it might be.

C. Q. 57. Where is the point of least adhesion in the top course, as between two blocks, one laid after the other has set, for the use of a timber which forms a timber line, on such timber line or midway of the blocks?

A. There is no weak point in a green block on top, except the block is about eight days old and dried out.

453 C. Q. 58. That is probably true as to the block, but how about the juncture of two blocks, one formed after the other has set?

A. A fresh top course will have an adhesion on a green top course. After one block has set that would be the weakest part, I think.

C. Q. 59. The weakest point between two blocks, one laid after the other has set, would be on the timber line, which line extends entirely through the block?

A. Yes.

C. Q. 60. This being conceded, if a cut were made of a sixteenth of an inch in depth and a quarter of an inch away from the timber line, where, in your opinion, would the separation of a block occur—on the timber line or on the cut?

A. I have observed in this city many of such cuts, which has been done by carelessness of the workman. In most cases there were two very irregular cracks and in some others there have been one zigzag crack running from one point to the other, from a joint line to the cut line. I would like to point out such a pavement to you in this city.

C. Q. 61. It would appear, then, that the cut does not control the cracking in these cases, would it not?

A. Not in the way described by you in a former question.

C. Q. 62. Is not the object of the cut more to make a straight line same as stated by you for cutting granite, and thereby have the separation appear as being straight rather than effecting the separation?

454 A. The cutting is made to form a section and will do so if it is done right.

C. Q. 63. And not to form a separation, then?

A. It forms a separation first and then it forms a section.

C. Q. 64. Then, in your judgment, no separation will occur unless

a cut is made, notwithstanding the fact that you have testified that the timber line extends through the entire block?

A. Yes, sir; a separation might take place, but an irregular one.

C. Q. 65. That, then, simply insures regularity at the separation?

A. The cut does both; it insures regularity and divides.

C. Q. 66. Will the cut insure regularity and division if not over the timber line?

A. Not uniform, except made deep enough.

C. Q. 67. How deep does your patent call for the cut to be made by the word "equivalent?"

A. Whenever it effects a separation.

C. Q. 68. If a cut should be made through the centre of a block forming a separation, and a separation should also occur on the timber line of the same block, which separation would be covered by your patent, if at all?

A. Both, if the timber was used for forming a joint or for the purpose of making a joint.

JOHN J. SCHILLINGER.

455 JOHN H. STARK, a witness on behalf of the complainants, being duly sworn, deposes as follows:

Examined by Mr. HEY:

Q. 1. What is your name, age, residence, and occupation?

A. John H. Stark; 40 years; 174 East 87th street, in the city of New York; artificial stone works.

Q. 2. Are you familiar with concrete or cement pavement work? If so, how long have you been engaged in such work?

A. I have worked in this business about eleven years; have worked about six years for another man, and have been in the business for myself about five years.

Q. 3. In a cement or concrete pavement in which the blocks are formed within a scantling mould by laying a lower course of sand, gravel, and cement made plastic with water to a depth of, say, two to two and a half inches and putting on a top course of fine sand and cement made plastic with water and marking the timber line on each side of the block, then letting the block partly set and removing the scantling and making another block against the completed block, then placing a straight edge across and between the two blocks in line with the marks previously made, and cutting between the two blocks on said line from an eighth to a quarter of an inch in depth, state what effect, if any, such cutting will have
456 in case the blocks are raised or depressed by the action of frost or other causes.

A. If made in the way read, in case one block should have to be taken out, it can be taken out without disturbing the next block against it. If you make a pavement that way there will be no other crack in it. In case if that is mixed strong enough—if there is enough cement in it is what I mean to say—the crack will follow the line made by the trowel.

Cross-examination by Mr. BOND:

C. Q. 1. What would be the result if the cut made by the trowel was made an inch to one side of the timber line on the block first completed, so far as the cracking between the two blocks is concerned?

A. When the scantling is laid and the next block finished against it and if then a mark is made about one inch over the line it will crack where the scantling was laid. In case if there is mixed not enough cement it will crack in both places if the stuff is poor.

Redirect examination by Mr. GEO. W. HEY:

R. D. Q. 1. If no cut is made on the timber line will the cracking be straight and true or zigzag and rough?

A. The cracking will be on a straight line, providing the scantling is straight and true.

JOHN H. STARK.

457 TUESDAY, *August* 21*st*, 1883—10 a. m.

JOHN H. STARK recalled.

Examined by Mr. HEY:

Q. 1. Are you the same witness, Mr. Stark, who testified previously?

A. Yes, sir.

Q. 2. I am told you desire to make a correction in your deposition in regard to redirect question one, which I now read to you. (Counsel reads.) Please explain wherein the answer thereto is incorrect and how such error occurred.

A. Sometimes that will be a straight line, but generally there will be a little zigzag; not much, though.

Q. 3. When will it be a straight line?

A. That will be a straight line when the first flagging is made a couple of hours before the next one is laid against it.

Q. 4. You mean when the first flag has become hard?

A. Yes, sir.

Q. 5. And when the flags are green the top course will adhere together and crack irregular if no cut is made?

A. The line will be a little zigzag on top.

Q. 6. If a cut is made on the timber line how will it crack?

A. There will be a straight line.

Cross-examination by Mr. BOND:

458 C. Q. 1. With whom have you talked since giving your previous testimony in reference to the matter about which you have testified?

A. Nobody than Mr. Schillinger.

JOHN H. STARK.

Circuit Court of the United States, Northern District of Illinois. In Equity.

JOHN J. SCHILLINGER *et al. against* J. B. HURLBUT.

I, Walter G. Hennessy, a duly appointed notary for the city and county of New York, do hereby certify that on the several days named in the deposition hereto annexed I was attended at my office, number 95 Nassau street, in said city of New York, by the counsel and witnesses therein named; that the said witnesses were duly sworn and examined and their several depositions were reduced to writing and read to the witnesses and by them subscribed in my presence.

Dated New York this 22d day of August, 1883.

[L. S.] W. G. HENNESSY,
Notary Public (198), *N. Y. Co.*

459 STATE OF NEW YORK, }
City and County of New York, } *ss:*

I, Patrick Keenan, clerk of the city and county of New York, and also clerk of the supreme court for the said city and county, the same being a court of record, do hereby certify that W. G. Hennessy, before whom the annexed deposition was taken, was, at the time of taking the same, a notary public of New York, dwelling in said city and county, duly appointed and sworn and authorized to administer oaths to be used in any court in said State, and for general purposes, and that his signature thereto is genuine, as I verily believe.

In testimony whereof I have hereunto set my hand and affixed the seal of said court and county the 23d day of August, 1883.

[L. S.] PATRICK KEENAN, *Clerk.*

460 Copy of the record in the case of John J. Schillinger *vs.* the Greenway Brewing Company, marked "Complainants' Exhibit Greenway Brewing Company Record," in words and figures as follows, to wit:

461 In the Circuit Court of the United States, Northern District of New York. In Equity.

To the honorable the judges of the circuit court of the United States for the northern district of New York:

John J. Schillinger, residing at New York city and a citizen of the State of New York, brings this his bill of complaint against The Greenway Brewing Company, a corporation duly organized and incorporated under the laws of the State of New York, defendant, doing business in the city of Syracuse, in the county of Onondaga, in said northern district of New York, and a corporation of the State of New York.

462 And thereupon your orator complains and says that heretofore and before the 19th day of July, 1870, John J. Schil-

linger, being then a citizen of the United States, was the first and original inventor and discoverer of a certain new and useful improvement in concrete pavements, described in the letters patent dated July 19th, 1870, hereinafter mentioned, and which was not known or used by others prior to his invention thereof, and which was not and had not been at the time of his application for letters patent therefor, as hereinafter mentioned, in public use or on sale with his consent and allowance for more than two years prior to his application for a patent therefor nor in such use in any way.

That your orator, being so as aforesaid the first and original inventor and discoverer of the said improvement, and being a citizen of the United States, and being desirous to obtain an exclusive property in said invention or improvement within and for the United States, did, on the 19th day of July, 1870, upon due application therefor, and having in all things complied with the conditions and requirements of the acts of Congress in such case made and provided, obtain letters patent of the United States for said invention or improvement in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, bearing date the said 19th day of July, 1870, and numbered 105,599, which said let-
463 ters patent are now remaining of record in the Patent Office of the United States, by which said letters patent there was granted and secured or intended to be granted and secured to the said John J. Schillinger, his executors, administrators, or assigns, for the term of seventeen years from the said 19th day of July, 1870, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention or improvement described in said letters patent, and by virtue thereof your orator became and was the sole owner of all the rights and privileges granted and secured or intended to be granted and secured in and by said letters patent.

And your orator further shows unto your honors that your orator, so being the first inventor as aforesaid, having for good and lawful cause after the issuing of the said letters patents as aforesaid surrendered the same to the Commissioner of Patents, and having made due application therefor, and having in all things complied with the requirements and conditions of the acts of Congress in such case made and provided, did, on the 2d day of May, 1871, obtain new letters patent, numbered 4364 of reissued letters patent, for the same invention, on a corrected specification, for the residue of the said term of seventeen years from the 2d day of May, 1871, which said reissued letters patent were issued in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Pat-
464 ents, bearing date the said 2d day of May, 1871, and numbered 4364 of reissued letters patent, and which said reissued letters patent are now remaining of record in the U. S. Patent Office, as by said letters patent or a duly authenticated copy thereof, in court ready to be produced, will fully and at large appear.

And your orator further shows that by reason of the said reissued

letters patent your orator has ever since the issuing thereof and is exclusively entitled to use, exercise, and enjoy all the exclusive rights, privileges, profits, and advantages granted and secured or intended to be granted and secured in and by said reissued letters patent for and during the term of years in said reissued letters patent mentioned.

And your orator further shows unto your honors that the said invention or discovery so patented as aforesaid is very valuable and useful to the public, and that the same has been extensively introduced into public use, and that the public generally have acquiesced in the exclusive right of the patentee and your orator, as his assignee, to the same; and your orator would, but for the wrongful acts of the said defendant and others acting in concert with it, have made large gains and profits from the manufacture, use, and sale of the said invention, which he has been and is now hindered from making by reason of the said wrongful acts of the said defendant.

And your orator further shows unto your honors that since the granting of said letters patent and the reissue your orator and
465 those holding under him have brought the said invention into public use in various parts of the country, and the same is of great advantage to the public and of great value to your orator, and has remained in the exclusive possession of your orator and those holding under him, to the great benefit of the public and great gains to your orator, of which gains your orator is unjustly deprived by the acts of the defendant hereinafter mentioned.

And your orator further shows unto your honors, upon information and belief, that the said defendant, well knowing the premises and the rights and privileges secured unto your orator, and in order to deprive him of the profits, benefits, and advantages which might and otherwise would have accrued to him, at the city of Syracuse aforesaid, within the said northern district of New York, and without the license or permission of your orator, has, since the 19th day of July, 1870, and at divers times since that time, and before the commencement of this suit, unlawfully and wrong-ly made or caused to be made, sold or caused to be sold, used or caused to be used, concrete pavement containing the said invention or discovery and improvements, or substantial or material parts thereof, described and patented in said reissued letters patent No. 4364, the exclusive right to which is secured to your orator, as hereinbefore set forth, and which said unlawful making, use, or sale by the defendant as afore-
said are in violation and infringement of your orator's ex-
466 clusive rights and privileges under said reissued letters patent as aforesaid, and that the said defendant still continues so to do, in defiance of your orator's said rights and privileges and to your orator's great and irreparable loss and injury, and by which your orator has sustained and been put to great loss and damage, and has been and still is deprived of great gains and profits which your orator might and otherwise would have obtained and received, but which have been received and enjoyed and are being received and enjoyed by the said defendant by and — its aforesaid unlawful acts and doings; and that the said defend-

ant has derived and received and is still deriving and receiving from such use great gains and profits, but to what amount and from what amount of the improved concrete pavement your orator is ignorant and cannot set forth; and your orator prays that the said defendant may be required to make a discovery and full disclosure as to its use of said invention, of the number made or used or sold, and of all gains and profits received by it therefrom or by means thereof.

And your orator further shows unto your honors that the aforesaid using of said invention by the said defendant and its confederates, and its preparation and determination to continue the same, and the aforesaid unlawful and wrongful acts, have the effect to encourage and induce other persons to infringe and defy the letters patent as aforesaid and the aforesaid exclusive rights and privileges of your orator.

467 And your orator further shows unto your honors that the said defendant has been warned and requested and notified to desist and refrain from said infringement and said unlawful and wrongful acts, but that said warning and request and notice have been wholly disregarded by said defendant, and that said defendant still continues the infringement and unlawful and wrongful acts aforesaid.

And your orator prays that the said defendant may be compelled, by a decree of this honorable court, to account for and pay over unto your orator all such gains and profits as have accrued or arisen to or have been earned or received by the said defendant, and all damages your orator has sustained by reason of the said infringements by the said defendant.

And that the said defendant, its officers, agents, attorneys, servants, and workmen, be enjoined and restrained by the order and injunction of this court from directly or indirectly *or indirectly* making, using, or vending any concrete pavement or other article containing or embodying the said invention described and secured in said reissued letters patent so granted as aforesaid or any substantial or material part thereof, and from infringing upon or violating the said letters patent by the manufacture, use, or sale of said invention in any way whatever; and that the said defendant may be decreed to pay the costs of this suit, and that your orator may have such other or further relief as to this honorable court shall seem meet and shall be agreeable to equity.

468 And may it please your honors to grant to your orator a provisional or preliminary injunction, issuing out of and under the seal of this honorable court, enjoining and restraining the defendant, its officers, agents, attorneys, servants, and workmen, to the same purport, tenor, and effect hereinbefore prayed for in regard to said perpetual injunction.

To the end, therefore, that the def't, The Greenway Brewing Company, may, if it can, show why your orator should not have the relief hereby prayed, and may, upon the corporal oath of its duly authorized officers, true and direct and perfect answer make, according to the best of its officers, agents, clerks, servants, and workmen's

knowledge, remembrance, information, and belief, to the several matters hereinbefore averred and set forth as fully and particularly as if the same were here repeated paragraph by paragraph and they thereto severally and specifically interrogated:

May it please your honors to grant to your orator a writ of subpœna, issuing out of and under the seal of this honorable court, directed to the said defendant, The Greenway Brewing Company, commanding it, by a certain day and under a certain penalty, to be and appear in this honorable court, then and there to make answer unto this bill of complaint and to perform and abide by such order and decree herein as — this court may seem meet and agreeable to equity.

And your orator will ever pray, &c.

JOHN J. SCHILLINGER,
By DUELL & HEY, *His Attorneys.*

DUELL & HEY,
Comp's Sol'rs and of Counsel.

469 UNITED STATES OF AMERICA.

NORTHERN DISTRICT OF NEW YORK, } ss:
County of Onondaga, }

C. H. Duell, being duly sworn, deposes and says that he is one of the solicitors for the complainant herein and that he has read the foregoing bill of complaint by him subscribed and knows the contents thereof; that the same is true of his own knowledge except as to those matters therein stated on information and belief, and as to those matters he believes it to be true; and he further deposes and says that he verily believes the said John J. Schillinger to have been the first and original inventor of the invention patented to him as set forth in said bill, and that the same has not been in use or described before the invention by him; that deponent's knowledge of the matters set forth in said bill of complaint is derived from statements made to him by the complainant and by papers in his possession; that deponent makes this verification instead of the complainant because the complainant is not a resident of or now within the county of Onondaga, which is the county of deponent's residence and office.

C. H. DUELL.

Subscribed and sworn to before me this 20th day of June, 1882.
E. NOTTINGHAM,
Notary Public, Onon. Co., N. Y.

Replication in the usual form.

470 United States Circuit Court, Northern District of New York.
In Equity.

JOHN J. SCHILLINGER *vs.* THE GREENWAY BREWING CO.

SIR: You will please take notice that the complainant herein will proceed to take proofs in support of the bill of complaint before F. H. Gibbs, Esq., special examiner, at the office of Duell & Hey, No. 37 North Salina street, Syracuse, N. Y., on April 6th, 1883, at 10 a. m. The examination of witnesses will continue from day to day without further notice until completed. You are invited to attend and cross-examine.

DUELL & HEY,
Sol'rs for Compl't.

To J. L. King, Esq., counsel for defendant.

Service of the above notice is hereby admitted this 30th day of March, A. D. 1883.

JNO. L. KING,
Counsel for Def't.

471 United States Circuit Court, Northern District of New York.
In Equity.

JOHN J. SCHILLINGER *vs.* THE GREENWAY BREWING CO.

Testimony taken in the above cause, pursuant to notice, before F. H. Gibbs, agreed on as special examiner by the counsel herein, at his office, No. 37 North Salina street, Syracuse, N. Y., April 6th, 1883.

APRIL 6TH, 1883—10 a. m.

Parties appeared as follows:

G. W. Hey for complainant, John L. King for defendant.
And the following proceedings were had:

Complainant's counsel offers in evidence certified copy of U. S. letters patent (reissue) No. 4364, granted to complainant for improvement in concrete pavements, dated May 2d, 1871, with request that the same be marked "Complainant's Exhibit Schillinger Patent," and the same is so marked and herewith returned.

F. H. G.,
Special Examiner.

Complainant's counsel offers in evidence certified copy from the files of the Patent Office of the disclaimer, filed March 1st,
472 1875, in the matter of the above reissued letters patent, with the request that the same be marked "Complainant's Exhibit Schillinger Disclaimer," and the same is so marked and returned.

F. H. G.,
Special Examiner.

At the request of complainant's counsel it is admitted by defendant's counsel that the defendant has upon its premises one concrete pavement in its malt house, the construction of which is as follows:

The foundation floor, being prepared, had strips or scantlings of wood 2 x 4, of sufficient length for the required section, placed in position about 2½ feet out from the coping and parallel therewith. A composition composed of sand, gravel, and cement, made plastic with water, was then spread within the mold formed by the aforesaid scantling and rammed down so as to come within ½ inch of the scantling. Then a finer course, composed of fine sand and Portland cement, about half and half, made plastic with water, was then floated over the coarse material and smoothed over or struck off with a straight edge. The block or section was then allowed to set. After becoming sufficiently hardened the scantling was removed from the outer edge of the block to about the same distance and parallel with the outer edge of the completed block, and the second block or section formed of coarse material the same as the first, after which a cutting trowel was drawn across and through the coarse mate-
473 rial along the line of the completed block and the fine upper finishing course poured in the mold on top of the lower or coarse material, and struck off and floated with a straight edge as in the first block; a straight edge was then applied between the two blocks or sections over the timber line and a cutting trowel drawn through the upper course of fine material over the cut in the course material; the edges of the two sections along the cut made by the trowel were then smoothed down with the float or trowel, and the remaining blocks or sections of pavement were formed consecutively in the same way. No tar paper was placed between the blocks.

EMIL LAASS, a witness called on behalf of complainant, being duly cautioned, sworn, and examined, deposes and says:

Recess to 2 p. m.

F. H. G.,
Special Examiner.

2 p. m.—Recess to 10 a. m., 7th inst.

F. H. G.,
Special Examiner.

April 7th, 1883.—Recess to 3 p. m., April 12th, 1883.

F. H. G.,
Special Examiner.

474 APRIL 12TH, 1883—3 p. m.

Parties appeared as before and E. LAASS took the stand.

Q. 1. What is your name, age, residence, and occupation?

A. Emil Laass; age, 50 years; residence, Syracuse, N. Y.; occupation, civil and mechanical engineer, solicitor of patents, and expert in patent causes.

Q. 2. State what opportunities you have had to qualify yourself to testify as an expert in patent cases.

A. I have followed the occupation of civil and mechanical engineer for about 26 years, and during that time I have prepared plans and specifications for various structures, and have superintended the same. Within the last 10 years I have prepared and conducted hundreds of applications for patents for various inventions and have been frequently called on to examine patents and the state of the art to which they pertain for the purpose of ascertaining the scope of such patents and determining questions of infringement. I have also served as an expert witness in a number of suits involving the question of infringement of patent.

Q. 3. Please look at "Complainant's Exhibit Schillinger Patent," and state whether you are familiar with the same.

A. I am.

Q. 4. Please state briefly what you understand to be the invention set forth and claimed therein.

475 A. The invention consists in a concrete pavement formed in detached blocks or sections directly on the bed or foundation on which it is to be used, said blocks being formed by the introduction of a dividing strip or tool run along the line at which the joints of the blocks are to be formed, the process of dividing being carried on while the concrete is in a plastic state.

Q. 5. Have you read and are you familiar with the decisions of Judge Shipman, Judge Blatchford, and Judge Sawyer in which the patent in suit was construed and sustained?

A. Yes, sir; I have read the decisions and understand the same.

Q. 6. How do the views which you have expressed agree with the construction put upon Schillinger's patent by the decisions of the court mentioned above?

Objected to as not being the best evidence. The decisions show for themselves.

A. They agree with them in every respect.

Q. 7. Please read the description of the defendant's pavement which I now show you and point out the features of actual resemblance or difference which you find between such pavement and the patented pavement of Schillinger as set forth in the patent in suit.

A. The pavement constructed as set forth in the statement
476 just read by me (pp. 2, 3, and 4, this record) is made in accordance with the terms of the patent to Schillinger, "Complainant's Exhibit Schillinger Patent," it being essentially a concrete pavement formed in blocks or sections directly on the foundation on which it is to be used, and the separation of the blocks being effected by the introduction of the tool forming a joint along the lines of separation, such joints controlling the cracking of the pavement and allowing one block to be removed without material injury to the adjacent blocks, and this is the main object of Schillinger's invention, a result which had never been attained prior to his invention.

Cross-examined by Mr. KING:

C. Q. 8. I have here a copy of the original letters patent, which I show you and ask you if you have examined this original patent?
A. No, sir; I have not.

Offers original letters patent to John J. Schillinger of July 19th, 1870, No. 105,599, and the same is marked "Defendant's Exhibit Schillinger's Original Patent."

F. H. G.,
Special Examiner.

C. Q. 9. Please examine the latter portion of the patent.

(Witness does so.)

C. Q. 10. Is not the main object of this original patent to
477 make a pavement in sections, so that by the interposition of tar paper the joints between the sections shall be water-tight?
A. No, sir; that is not the main object. The main object of the tar paper is to form separate joints, which will allow one block to be removed without injury to the adjacent blocks.
C. Q. 11. You say it is not the principal object. Is it not an equally important object with that which you have just stated?
A. No, sir; in some pavements it is immaterial whether the joint is water-tight or not.
C. Q. 12. Have you ever seen or examined the floor of the defendant described in the statement; and, if so, do you know for what purpose it is used?
A. I have examined the pavement referred to. It is used in the floors of the malt house for the storage of malt during the process of malting.
C. Q. 13. It is necessary that such a floor should have tight joints, is it not?
A. Yes, sir; I presume so.
C. Q. 14. If there is any infringement of any patent in the construction of said floor it would be rather an infringement of the original letters patent than of the reissue?
A. It infringes both to an equal extent, for the reasons stated in my answer to question four.
C. Q. 15. (The counsel reads the last clause in the original letters patent.) In your opinion as an expert, is that the same, or the same invention as what is claimed in the reissue letters patent?
478 Was not the idea patented by the original patent, that of making a water-tight joint between the blocks by interposing tar paper, and does it not essentially differ from the idea patented in the reissue?
A. The claim of the original patent covers substantially the same invention as that embraced in the first clause of the reissue, for the reason that the claim of the original patent embraces all equivalents of tar paper, or, in other words, any suitable means for forming separable joints between the blocks, and therefore it covers substan-

tially a concrete pavement laid in detached blocks or sections, as set forth in the first clause of the reissue.

Defendant's counsel reserves the right to recall the witness for further cross-examination.

Examination closed for the present, subject to notice.

EMIL LAASS.

F. H. GIBBS,
Special Examiner.

Sworn to before me this 6th day of April, 1883.

F. H. GIBBS,
Special Examiner.

479 United States Circuit Court, Northern District of New York.
In Equity.

JOHN J. SCHILLINGER
against
THE GREENWAY BREWING COMPANY.

Testimony taken on behalf of the complainant, in rebuttal, in pursuance of agreement between counsel herein.

Present: For complainant, Duell & Hey, G. W. Hey, Esq.; for defendant, John L. King, Esq.

480 EMIL LAASS, a witness recalled in rebuttal on behalf of complainant, being duly sworn, deposes as follows:

Q. 1. Have you been examined as a witness in this case on behalf of complainant in the *prima facie* proofs?

A. I have.

Q. 2. Have you examined and studied the various exhibits, English and American patents, offered in behalf of the defence as exhibits in this case?

A. I have.

Q. 3. Do you understand the inventions described, or alleged to be described, in said English and American patents?

A. I do.

Q. 4. Please take the exhibits marked Ex. 1, 2, 3, 4, 5, 6, the Huestis patent, and Exhibit Russ Patent, and state what you find to be therein described and point out wherein the inventions set forth in the aforesaid exhibits resemble or differ from the concrete pavement of Schillinger as described in complainant's patent, giving reasons for any opinions you may express.

A. I find in the several exhibits referred to descriptions of various constructions of pavement and compositions of concrete designed for various purposes for which stone and analogous material is used, but in no instance do I find anything resembling or even approaching the invention set forth and claimed in complainant's reissue patent.

481 In order to fully state my reasons for the opinion here expressed I will refer to the exhibits, individually, in the order in which they are numbered.

In Exhibit No. 1 I find the description of a pavement composed chiefly of asphalt treated in a peculiar way and rendered semi-fluid by heat, in which state it is applied to the bed on which the pavement is to be formed, said compound, when cooled, forming a hard surface free of joints; hence said pavement differs from that claimed by Schillinger, in that it does not constitute a concrete pavement and is not formed in detachable blocks.

In Exhibit No. 2 I find a description of another pavement formed of a compound which is not a concrete such as claimed by the Schillinger patent, neither is it designed to be composed wholly of detachable blocks for the purpose of controlling the line of cracking, but merely makes the necessary provisions for access to gas and water pipes by sections of the pavement being set in frames which are removably seated in the surrounding pavement.

The Exhibit No. 3 has no particular reference to the construction of pavements, but merely relates to the production of artificial stone, concrete, or cement from various combinations of sands, gravels, broken flint, and various other substances, which compound is designed to be used chiefly for houses, cellars, vaults, and various other structures.

I am unable to find in any portion of this exhibit a description of a concrete pavement made in detachable blocks in the
482 manner specified in the patent to Schillinger, neither can I find such a pavement described in the Exhibit No. 4.

The pavement referred to in Exhibit No. 4 is not a concrete pavement, but is composed chiefly of asphalt, caoutchouc, gutta-percha, marine glue, and wood, which compound is laid upon a bed composed of lime and sand. Said bed is laid without joints, which allows one section to be removed without disturbing the adjoining section, and so is also the compound spread over the bed, although there are strips or bands of vulcanized caoutchouc or other analogous substances imbedded in said compound; yet I find that they are not designed to form separable joints in the pavement, the specification distinctly stating that a coat of marine glue is to be applied to those parts to be placed in contact with the asphalt; the asphalt being hot will cause the marine glue to melt and adhere to it strongly; hence it is evident that the patentee did not design to have the pavement formed in detachable blocks such as is claimed by Schillinger.

The invention described in Exhibit No. 5 relates to the construction of artificial stone or concrete for various purposes. Its ingredients consist chiefly of resin, linseed oil, or tallow combined with pulverized whiting or chalk, oakum, or other fibrous substance and sand, all of which is commingled by heat and agitation.

In constructing pavements from the aforesaid material the latter is melted and spread in a semi-fluid state on the ground pre-
483 pared for the pavement to the thickness of about one-fourth of that intended for the whole block or stone, another layer being subsequently added.

The first layer is designed to cover the entire surface without joints, and upon this layer the second layer is formed in various patterns.

It is evident from the foregoing that the nature of the material employed binds the upper layer with a solid and seamless lower layer so firmly as to render it impracticable to remove one section of the pavement without disturbing the adjacent sections, and therefore does not afford the advantages derived from the Schillinger invention.

The pavement described in Exhibit 6 does not come under the class of concrete pavements at all. It is simply a pavement composed of wooden blocks.

I cannot see in what respect this particular pavement has any bearing on the question at issue.

The same might be said of the Huestis patent exhibit.

The pavement therein described consists in the use of iron boxes filled with any suitable hard material and set closely side by side, the whole forming a traveling surface composed of the metal faces of the boxes and contents of said boxes.

It is obvious that such a pavement does not present a uniform concrete wearing surface, such as is obtained by the Schillinger pavement. In fact, it cannot be properly classed among concrete pavements.

484 In Exhibit Russ Patent I find the description of a pavement which properly belongs to the class of stone pavements and consists chiefly in an improved construction of the foundation of such pavements, the improvement consisting in providing said foundation with removable sections or panels directly over the gas or water pipes so as to afford a ready access thereto, but the main portion of said foundation is intended to be solid and without joints. The top course, or pavement proper, is formed of stone laid in the ordinary way, and the joints of the before-mentioned sections or panels in the substratum or foundation are made regardless of the joints in the upper stratum or stone pavement.

I can see no resemblance between said pavement and the Schillinger pavement.

The aforesaid exhibits I find to be as follows:

No. 1 is Defendant's Exhibit British Patent number 7489, of 1837, granted to R. T. Claridge for "cement for paving and building purposes."

No. 2 I find to be Defendant's Exhibit British Patent No. 350, of A. D. 1852, granted to A. Chesneau for "paving."

No. 3 is Defendant's Exhibit British Patent No. 2569, of A. D. 1855, to Francois Coignet for "artificial stone and cement."

The Exhibit No. 4 I find to be Defendant's Exhibit British Patent No. 4, being No. 771, of A. D. 1856, granted to C. J. L. M. D. L. Haichois for improvement in "paving."

485 No. 5 is Defendant's Exhibit British Patent No. 5, bearing No. 7991, of A. D. 1839, to D'Harcourts for artificial stone, marble, &c.

No. 6 is Defendant's Exhibit British Patent No. 6, bearing No.

9737, of A. D. 1837, granted to Henry Austin for wood pavements, flooring, and veneers.

The Huestis patent referred to is "Defendant's Exhibit Huestis Patent," and

The Russ patent referred to is "Defendant's Exhibit Russ Patent."

In giving my opinion of the scope of the Schillinger patent I wish it to be distinctly understood that I consider the said invention to consist essentially in forming a concrete pavement in detachable blocks by the insertion of any suitable material or implement or tool while the material is in a plastic state or during the process of formation, thereby obtaining in the most convenient, expeditious, cheap, and effective manner a pavement which admits of removing one section without materially disturbing the adjacent sections, and which is capable of accommodating itself to the effect of the heat and cold and expansion and contraction, which advantages are not attained in any other known concrete.

Cross-examined by Mr. KING:

C. Q. 5. From the state of the art as shown by the English
486 patents, would you say that the mere cutting between the blocks is such an improvement as would involve invention?

A. Yes, sir; I do, decidedly.

In nearly all the English patents referred to the material of the pavement is of a nature which requires heating in order to render it semi-fluid or in proper condition to allow it to be spread over the foundation of the pavement, and such material cannot be formed into detachable blocks by a mere insertion of a tool, inasmuch as the seam would close and the parts reunite as soon as the tool was removed. Hence, none of the pavements described in the English patents can be constructed in accordance with the Schillinger invention, and, furthermore, the material used in the pavements described in the English patents is sufficiently elastic to yield to the contraction and expansion without producing disruptures.

C. Q. 6. As a matter of fact, is not the defendant's pavement exactly similar to the pavement described by the witness Brewster, with the exception of the cutting between the blocks?

A. The defendant's pavement differs from that described by the witness Brewster in that the former is constructed with lines of separation by the insertion of the trowel in the material during the process of construction, while in the pavement described by the witness Brewster no attempt is made to form such lines of separation.

C Q. 7. Would not, in your opinion, the cutting between
487 the blocks for the purpose of controlling the cracking and causing it to follow the cut line suggest itself as a matter of common sense to any person familiar with making such pavements as described by the witness Brewster?

A. No, sir; it seems not, at least no one thought of it until Schillinger conceived the idea.

C. Q. 8. Point out wherein the mere cutting of the pavement in defendant's malt-house involved the use of the patented process of Schillinger, or the pavement described in his letters patent.

A. It involves the invention of Schillinger in that it produced a joint which controlled the line of cracking, and said joint was formed during the formation of the pavement.

C. Q. 9. Would not the making of a pavement as described by witness Brewster bring about the same result, so far as the cracking is concerned, as the process described in the letters patent of Schillinger; and, if so, are not the two processes identical?

A. No, sir; the process described by Brewster does not form a definite line of separation.

C. Q. 10. Is not the process described by Brewster the same as that by which the floor in defendant's malt-house was laid, and is not the floor now in the malt-house practically the same in every essential feature as that laid down by Brewster?

A. No, sir; the floor in defendant's malt-house is formed with the joints required to control the cracking.

488 C. Q. 11. Is not the malt-house floor of defendant constructed substantially in the manner of the pavement which is described in the Schillinger disclaimer?

A. No, sir; it is not; because defendant introduced *to* tool in the material of the pavement while in a plastic state, by which tool he formed a joint which controlled the line of cracking and allowed one section to be removed without materially injuring the adjoining sections.

EMIL LAASS.

Sworn before me this 8th day of June, 1883.

F. H. GIBBS,
Special Examiner.

Testimony closed.

489 United States Circuit Court, Northern District of New York.
In Equity.

JOHN J. SCHILLINGER *vs.* THE GREENWAY BREWING CO.

I, Frederick H. Gibbs, notary public, duly appointed special examiner by an order heretofore made in this action, do hereby certify that on the several days named in the deposition hereto annexed I was attended at Syracuse, New York, by the counsel and witness therein named, and the said witness was duly sworn and examined and his deposition was reduced to writing and subscribed by said witness in my presence, and the documentary exhibits named in said deposition were introduced in evidence in said cause during the taking of said deposition.

Dated Syracuse, New York, June 8th, 1883.

[L. S.] FREDERICK H. GIBBS,
Notary Public and Special Examiner, Onondaga Co., New York.

490 *Amended Answer of the Defendant.*

United States Circuit Court, Northern District of New York. In Equity.

JOHN J. SCHILLINGER

against

THE GREENWAY BREWING COMPANY.

And now comes the defendant, by Sedgwick, Ames & King, its solicitors, by leave of the court first had and obtained, and, further answering, says—

That it admits, upon information and belief, that letters patent of the United States No. 105,599, bearing date the 19th July, 1870, were issued to complainant as alleged in said bill, but it denies that complainant was the first and original inventor of the alleged invention described in said patent.

491 This defendant also admits that the said patent No. 105,599 was surrendered and a reissue taken therefor, dated May 2d, 1871, No. 4364, as alleged in the bill, but it denies that the original patent was inoperative or invalid by reason of any defect which could lawfully be corrected by a reissue.

This defendant avers that the original patent was not surrendered for any good or lawful cause, and that the reissue 4364 thereof is not for the same invention as said original patent, and that in granting the same the Commissioner of Patents exceeded his jurisdiction, and the said reissue is void and of no effect.

This defendant admits that on or about the first of March, 1875, the complainant entered his disclaimer in the Patent Office to certain portions of the alleged invention described in the reissue, as alleged in the bill, and it avers that in and by said disclaimer the said complainant intended to and did disclaim the laying of concrete in separate blocks except in connection with tarred paper.

This defendant, further answering, avers that it has no knowledge or information, save that derived from the bill, in reference to the decisions of Judges Shipman, Blatchford, and Sawyer, and can neither admit nor deny the allegations of the bill in that regard, and it has no knowledge whether a defense was made in either of said suits or any contest was made as to the validity of said reissue patent No. 4364 and the disclaimer filed thereto, but it avers,

492 upon information and belief, that the result of said several suits has no bearing or effect as to any supposed infringement by this defendant, and that it has, as it is informed and believes, new matter of defense as to the originality and validity of said reissue patent.

This defendant, further answering, denies, upon information and belief, that the complainant was the first and original inventor of the alleged invention set forth and claimed in said reissue No. 4364, and it alleges that long prior to the supposed invention thereof by the

complainant the said matters and things had been shown in and described by letters patent of Great Britain, as follows, viz:

English patent to R. T. Claridge, enrolled May 25th, 1838, No. 7489, of the year 1837, for cement paving.

English patent granted to G. R. D. Harcourt, enrolled Sept. 6th, 1839, No. 7991, of 1839, for artificial stone, etc.

English patent No. 350, 1852, for paving, granted to A. Chesneau.

English patent No. 2659, 1855, for artificial stone and cement, granted to F. Coignet.

Also English patent No. 771, of 1856, paving, granted to C. J. le M. de la Haidchois.

U. S. letters patent No. 5475, dated March 14th, 1848, granted to H. P. Russ.

U. S. letters — No. 56563, dated July 24th, 1866, granted D. Huestis, and in English patent No. 9731, of 1843, granted to H. Austin for pavements.

493 This defendant, further answering, avers, upon information and belief, that the alleged invention described and claimed in reissue No. 4364 had been known to and in public use in the United States and elsewhere for more than two years prior to the filing of the application upon which complainant's original patent issues, and that such prior use was by and known to the following persons, whose residences and place of use or where they had such prior knowledge is set out next to their names, as follows, viz:

John Greenway, at Syracuse, N. Y.

Henry Brewster, at Syracuse, N. Y.

One Quaife, whose first name is unknown to defendant, at Cazenovia and elsewhere.

Michael Botzer, at Chicago, Ill., where said Botzer now resides.

George Dickenson, at Chicago, and by other persons connected with the Downer and Bemis Brewing Co. of Chicago.

Charles Krotz, of Milwaukee, at Milwaukee, Wis.

Fred. Pabpts, of the Ph. Best Brewing Co. of Milwaukee, Wis., and by other persons connected with said brewing company at Milwaukee aforesaid.

Swigel and Bell, brewers, in Baltimore, Md.

Charles Row, of Chicago, at Baltimore and in Bavaria, Germany.

494 John Miller, of Chicago, Ill., in Germany and other places.

John Pietsch, at Germany and other places.

And also known to and used by various other parties now to this defendant unknown, but to whom he begs leave to refer as soon as discovered.

This defendant, further answering, avers, upon information and belief, that the state of the art in laying concrete and other floors and walks at the date of the supposed invention of complainant was such that it did not require invention, but simply mechanical skill, to produce the supposed invention of the complainant.

This defendant, further answering, denies that it has, since the 2d May, 1871, and prior to the commencement of this suit or at any time made or caused to be made, used, or sold any concrete pave-

ments containing the supposed invention of complainant, but it admits that it has caused to be laid in its malt house in Syracuse, N. Y., one cement or concrete floor, but that said floor is very different in construction from the alleged invention of complainant, and that in so doing it has not infringed the reissue patent in suit.

Without this, that any other matter or thing whatsoever in the said bill contained material or necessary for this defendant to make answer unto, and not herein and hereby well and sufficiently
495 answered unto, confessed or avoided, traversed or denied, is true to the knowledge or belief of this defendant.

All which matters and things this defendant is ready to aver, maintain, and prove as honorable court shall direct, and humbly prays to be hence dismissed with its reasonable costs and charges in that behalf most wrongfully sustained.

SEDGWICK, AMES & KING,
Def't's Solicitors.

COUNTY OF ONONDAGA, *ss:*

John Greenway, Jr., being duly sworn, deposes and says that he is treasurer of the Greenway Brewing Co.; that he has read the foregoing amended answer, and knows the contents thereof; that the same is true to the knowledge of deponent, except as to the matters therein stated to be alleged on information and belief, and as to those matters he believes it to be true.

JOHN GREENWAY, JR.

Sworn to before me this 18th day of January, 1883.
A. G. COOK,
Notary Public.

496 United States Circuit Court, Northern District of New York.
In Equity.

JOHN J. SCHILLINGER *vs.* THE GREENWAY BREWING CO.

SIRS: You are hereby notified that we shall commence the taking of proofs on part of defendant on the 14th day of April, 1883, at 3 p. m., at the office of F. H. Gibbs, Esq., special examiner herein, at the city of Syracuse, N. Y. The examination of witnesses will continue from day to day until completed without further notice, as the examiner may order. You are invited to be present and cross-examine.

Yours, &c., SEDGWICK, AMES & KING,
Sol'rs for Defendant.

We admit service of the above notice this 12th day of April, 1883.
DUELL & HEY,
Complainant's Sol'rs.

497 United States Circuit Court, Northern District of New York.
In Equity.

JOHN J. SCHILLINGER *vs.* THE GREENWAY BREWING CO.

SYRACUSE, N. Y., *April 14th*, 1883.

Testimony taken on behalf of the defendant, pursuant to notice, at the office of F. H. Gibbs, special examiner, 3 p. m., April 14th, 1883.

Appearances: For complainant, G. W. Hey, Duell & Hey; for defendant, John L. King.

And the following proceedings were had:

Defendant's solicitor offers in evidence the defendant's record in the case of John J. Schillinger against The Phillip Best Brewing Company, in the U. S. circuit court, eastern district of Wisconsin, with request that the same be marked "Defendant's Exhibit Phillip Best Co. Record," and the same is so marked.

F. H. G.,
Special Examiner.

(Complainant's counsel consents to the introduction of
498 above record, with the understanding that the objections as to the competency of the interrogatories therein are to apply, and, further, that he is to have an opportunity to rebut the same if he so desires.)

Defendant's solicitor offers in evidence copies of patents granted for Great Britain, as follows:

No. 7489, of A. D. 1837, granted to Richard Tappin Claridge.

No. 350, of A. D. 1852, granted to Augustie Chesneau.

No. 2659, of A. D. 1855, granted to Francois Coignet.

No. 771, of A. D. 1856, granted to Charles Jean le Melorel de le Haichois for, 1st, cement for paving and building purposes; 2d, paving; 3d, artificial stone and cement; and, 4th, paving. And the same are marked, respectively, Defendant's British Patents Nos. 1, 2, 3, and 4.

F. H. G.,
Special Examiner.

Defendant's counsel also offers in evidence U. S. letters patent No. 105,599, of July 19th, 1870, granted to John J. Schillinger for improvement in concrete pavements, and the same is marked "Defendant's Exhibit Schillinger Original Patent."

F. H. G.,
Special Examiner.

499 Defendant's counsel offers in evidence copy of U. S. letters patent No. 56563, of July 24th, 1866, for iron pavement, granted to D. Huestis, and the same is marked "Defendant's Exhibit Huestis Patent."

F. H. G.,
Special Examiner.

Defendant's counsel offers in evidence office copy of U. S. letters patent No. 5475, of March 14th, 1848, granted to H. P. Russ for stone pavement, and the same is marked "Defendant's Exhibit Russ Patent."

F. H. G.,
Special Examiner.

Defendant's counsel offers in evidence British patent No. 7991, of A. D. 1839, to Geo. R. D'Harcourt, for artificial stone, marble, &c., and the same is marked "Defendant's Exhibit British Patent No. 5."

F. H. G.,
Special Examiner.

Defendant's counsel offers in evidence British patent No. 9737, of A. D. 1843, to Henry Austin, for wood pavements, flooring, and veneers, and the same is marked "Defendant's Exhibit British Patent No. 6."

F. H. G.,
Special Examiner.

500 Complainant's counsel objects to Defendant's Exhibit British Patent No. 3, to the Defendant's Exhibit Russ Patent, and to Defendant's Exhibit Huestis Patent, on the ground that said patents have been considered by this court in the case of Schillinger *vs.* Gunther and the anticipating matter therein contained held not to affect the complainant's patent in suit.

Complainant's counsel objects to Defendant's Exhibit British Patents 1, 2, and 4 as immaterial and irrelevant.

Adjourned, subject to agreement of counsel as to time.

F. H. G.
Special Examiner.

3.30 P. M., APRIL 25, '83.

Parties appeared as before and the following proceedings were had:

HENRY E. BREWSTER, a witness produced on behalf of defendant, being duly sworn and examined, deposes and says as follows:

Q. 1. What is your name, age, residence, and occupation?

A. Henry E. Brewster; age, 71; residence, Syracuse, N. Y., since 1838, and occupation brewer and malster.

501 Q. 2. In 1841 what was your occupation?

A. I was in the grocery business, but was building a brewery and malt house.

Q. 3. Did you have supervision of the building or construction of the floor in the malt house?

A. Yes.

Q. 4. Go on and state how that floor was made, of what material, and how was it made?

Objected to as improper, incompetent, and irrelevant.

A. The material was water, lime, and sand. It was laid in strips of about 2 or 2½ feet wide, so that they could manipulate it without stepping on the floor. I can't exactly tell how wide, it was so long ago—some 40 years ago.

Q. 5. After you had laid the first strip how did you proceed to lay the second, and what did you use to keep the material in position?

A. Well, they used some sort of a straight edge. I think it was a 2 x 4 scantling. That was my impression. I had but very little to do with it. I employed these men.

Q. 6. And you proceeded in this manner until the whole floor was laid?

(Objected to as leading.)

A. Yes, sir.

502 Q. 7. Do you know of any other floors that were laid that way here or hereabouts; and, if so, when and where?

A. I think in 1857 I built one in Geddes. I didn't know of any others.

Q. 8. After the strips were laid did you leave the floor in a rough condition?

A. No, sir; they were smoothed as they were laid. That was the object in laying them in that way. You can't lay it any other way, for otherwise you must tramp on it. There is no other way that I know of.

Cross-examined by Mr. HEY:

C. Q. 9. I understand you to say that you didn't lay these floors yourself.

A. You understood me right; I didn't.

C. Q. 10. Can you recall the names of the men who worked on the floors?

A. I think I can very well; I can.

C. Q. 11. Please name all the men you remember who worked on those floors.

A. There was but two, Robert Quaife and Thomas Langley.

C. Q. 12. Is the Robert Quaife mentioned the same one named in the answer in this case?

A. Yes, sir; the same man.

503 C. Q. 13. Do you know where he is now?

A. In his grave.

C. Q. 14. Where is Langley?

A. Ditto. Langley was killed here in the malt-house.

C. Q. 15. Are you interested in the Greenway Brewing Co.?

A. No, sir.

C. Q. 16. Were you formerly?

A. No, sir; not in the Greenway Brewing Co. I was a partner with John and George Greenway about fifteen years ago.

C. Q. 17. Were you present all the time while Quaife and Langley were making those floors?

A. It isn't likely I was present the whole time. I was around the building, all that was necessary.

C. Q. 18. Was you attention especially directed to the laying of those floors?

A. As much as any one's would be who was engaged in business and employed those men. They might have laid it right or wrong. I never saw one before.

C. Q. 19. Did you observe particularly how other parts of the building were constructed?

(Objected to as immaterial.)

A. I did.

504 C. Q. 20. How many rows of fermenting vats were there?

(Same objection.)

A. Two rows in the brewery. There were two fermenting tuns in the brewery; they were small then to what they are now.

C. Q. 21. Was there a gutter in the fermenting-room for carrying off the waste?

A. No, sir. The fermenting-room was on the second floor and the gutter was in the basement.

C. Q. 22. Was there an engine and boiler in that brewery and malt house?

A. No, sir; not at that time.

C. Q. 23. When was the engine and boiler put in?

A. I can't tell; we used horse-power then; I can't tell how long.

C. Q. 24. About when was it put in?

A. I should think in 1845 or '46. I took Greenway in company with me when they were put in. I think it was in 1845 or '46.

C. Q. 25. Can you be positive as to the time?

A. No, sir; I have no data to go from.

C. Q. 26. How do you fix the time when you put the floors in?

505 A. It was at the time of the powder explosion in Syracuse, and why I know it was at that time I stood near it and was looking for my man, whom I knew would be around there, and I thought he was killed. It was very important to me, a brewer, to find him.

Re-examined by Mr. KING:

R. D. Q. 27. Was the top of these strips laid as you have described any different material from the foundation part?

A. No, sir; they were the same; I don't know of any difference.

HENRY E. BREWSTER.

Subscribed and sworn before me this 25th day of April, 1883.

FREDERICK H. GIBBS,
Notary Public and Special Examiner.

United States Circuit Court, Northern District of New York.

JOHN J. SCHILLINGER *vs.* THE GREENWAY BREWING CO.

On reading the affidavit of John L. King, the notice of mo-
506 tion, and the amended answer of defendant, and after hearing Mr. King for the motion and Mr. Duell opposed—

Ordered, That the defendant have leave to serve its answer as amended, and that the plaintiff, within ten days after the entry of this order, may have leave to discontinue said action without costs to either party.

WM. J. WALLACE.

507 United States Circuit Court, Northern District of New York.
In Equity.

JOHN J. SCHILLINGER *vs.* THE GREENWAY BREWING CO.

I, Frederick H. Gibbs, notary public, duly appointed special examiner by an order heretofore made in this action, do hereby certify that on the several days named in the deposition hereto annexed I was attended at Syracuse, New York, by the counsel and witness therein named, and the said witness was duly sworn and examined and his deposition was reduced to writing and subscribed by said witness in my presence, and the documentary exhibits named in said deposition were introduced in evidence in said cause during the taking of said deposition.

Dated Syracuse, New York, April 25th, 1883.

[L. S.] FREDERICK H. GIBBS,
Notary Public and Special Examiner,
Onondaga Co., New York.

508 DEFENDANT'S EX. PHILLIP BEST CO. RECORD.

United States Circuit Court, Eastern District of Wisconsin.

JOHN J. SCHILLINGER

vs.

THE PHILLIP BEST BREWING COMPANY.

For the plaintiff, G. W. Hey, Esq.; Winfield & A. A. L. Smith, of counsel for the defendant.

NOVEMBER 21ST, 1882.

The defendants called JOHN MILLER, who, being sworn, testified:

I reside in the city of Chicago; I have lived here for nearly eleven years; I am 37 years of age.

509 Q. In whose employ are you now?

A. Portland Cement Paving Company.

Q. How long have you been in the employ of that company?

A. I guess for about eight years.

Q. What is your particular business?

A. I am a mason by trade, but I have done nothing much but cement work for the last eleven years.

Q. Did you lay any pavements and floors on the property of the Phillip Best Brewing Company in Milwaukee?

A. Yes, sir.

Q. When and whereabouts?

A. In the malt house on the corner of Tenth and Chestnut streets and in front of Best Brewing Co. office. I laid the pavement on it a little over two years ago this summer, in Milwaukee.

Q. Any other work on their premises?

A. Yes, sir; I laid a basement floor in the office building—pretty near, if not all—and a little piece of walk—sidewalk—I laid in Pabst's garden, his residence.

Q. Were you foreman of each of these jobs?

A. Yes, sir.

Q. What was the process of laying the sidewalk?

A. It was laid in diamond shape, different colored—black and white.

Q. In diamond blocks, square blocks, was it?

A. Yes, sir.

Q. How much of it was there—how wide?

510 A. I believe—I could not tell for sure—13 or 14 feet wide.

Q. About what was the size of the blocks?

A. Each block holds about eight square feet—of the four full blocks.

Q. What were the blocks made of?

A. Portland cement, sand, and gravel.

Q. Were the blocks in one row laid at the same time or separately from the blocks in another row?

A. We laid each row by itself, a block all the length of the sidewalk. the front of the building at one time; laid one row light color; after this was done laid a row of black color.

Q. Did you begin at the end of the piece of walk or side?

A. We ain't particular about that.

Q. How did you begin in that case?

A. We generally began on the end; worked from one end to another; but there is nothing very particular about that.

Q. What is the method, the process, that you employ; how did you lay it in this case?

A. We have got wooden molds—frames, we call them—to give the shape of the square stone.

Q. What shape are those wooden molds?

A. V-shaped molds, we call them.

Q. They are two sides of the square, are they—the mold is two sides of the square?

A. Yes, sir.

Q. You do not have the four sides of the square; only the two sides?

A. Yes, sir.

511 Q. What do you do with that mold?

A. After the ground is prepared we place the mold down on the ground and fill it. We fill it with gravel and sand and cement first—the first bed—then the finer coat comes on top of that.

Q. What is the size of the mold?

A. There is different lengths. We have molds that will lay two or three stones, and we have square molds. It depends upon the length of the walk. The cast of the size we used there will lay three squares.

Q. Does it then require three of these V's laid one beside another?

A. The frame consists of three V's, one laid side of the other. The three are in one piece.

Q. But when they are connected there are three, one beside another.

A. Yes, sir.

Q. How large are these V's; of the same size of the block you wish to make?

A. Just the same size—the half block, two sides.

Q. How high is this mold?

A. Three inches thick.

Q. It has no bottom or top.

A. It has a top, so far as the top side what we lay the walk by has to be straight and level.

Q. These hollow V's have no bottom underneath them.

A. No, sir.

Q. And have no cover over them.

A. No, sir.

512 Q. Each V, then, or mold for the block is composed of two sticks; that is all; two parts about three inches wide, attached at the ends and fastened together?

A. Two strips of one V attached on one end.

Q. The V itself is fastened at the corner or angle?

A. Yes, sir.

Q. You said you then poured in or put in the material of which the block is to be made?

A. Yes, sir.

Q. And what else?

A. That is all for the first row. After that block is finished entirely we take the frame back.

Q. That is, by filling the V. That makes a series of triangles?

A. Only the half square the first time the one side runs against the wall; I am speaking of the first commencement. After that stone is finished—the first row—we take the frame loose and lay the points against the stone which has just been laid; that will get the shape of the angle the next time.

Q. It leaves, then, an open square?

A. Yes, sir.

Q. Lying on the ground?

A. Yes, sir.

Q. What do you do then?

A. We lay the frame level—that is, to the right grade—and start

and place two stripes on the stone—on the two sides of the stone—that has just been laid and fill the frame again.

Q. What do you say—you lay the two stripes on the side of the stone that has just been laid? I do not understand.

513 A. That V frame, the mold, is two sides of that stone that is going to be laid and the stones that have just been laid; two of those stones give the other side of the square, and before we go to fill those stones we place a wooden strip on top of the other stones even with the edge of the stone, so that no stuff that we put in the mold will get onto that stone and onto the edge and spoil the edge.

Q. How would it spoil the edge?

A. By the color. There is a light and dark color. It will be a reverse color to the first row, and this color might run over onto the other stone.

Q. That is upon the theory that you are using different colors?

A. Certainly.

Q. It has nothing to do with the pavement, except for the purpose of keeping the colors?

A. Keeping the colors separate.

Q. What sort of a strip is that that you lay on the block previously made to prevent its being colored by the material you are just about to put on?

A. This wooden strip is the length of one side of those squares, of three inches wide, about half an inch thick, or a little more, and a strip of rubber attached onto it, on one edge of that strip, about an inch wide.

Q. How is that strip three inches wide and of the length of one side of the square laid upon the square, edge down or flat side down?

A. Flat side down on top of the stone.

Q. That is, just even?

A. Even with the edge.

514 Q. Is the strip of rubber you say runs along the edge of that piece of wood underneath or upon it?

A. Underneath the strip, so it lies close down onto the stone.

Q. It is to keep the new material from running onto the stone and staining the stone you have just previously finished?

A. Yes, sir.

Q. When you have so prepared the stone to protect it, and put your frame in place what next do you do?

A. We fill that stone and finish it.

Q. You fill this hollow square?

A. Yes, sir.

Q. With what?

A. Gravel, sand, and cement first, the first coat, rough coat, and put fine coal on top of that.

Q. Is the fine coat of the same material?

A. There is no gravel in it; sand and cement mixed, half and half, and colored. If it is a dark stone we want to lay, it has got to be colored.

Q. About what is the thickness of that fine coat which you lay over?

A. About half an inch.

Q. Does that become one solid piece with the coarse coat under it?

A. Yes, sir.

Q. When you so filled this frame or mold with this colored material, as you have described, what, if anything, separates that material from the white block which you had just laid there before?

515 A. Nothing separates it, only the strip on top keeps the dark color from running over on the stone. There is nothing between the stones to separate them.

Q. Is there anything between the sides or perpendicular edges of the blocks—in the joints between the stones?

A. Yes, sir; a little hook attached to these strips to keep the strips from slipping back while striking off—a little thin hook what presses into the other stone to keep it from slipping back.

Q. How wide is that hook?

A. One inch, about.

Q. What is under that edge of the old block and between that and the new one which is forming besides these two hooks?

A. Nothing.

Q. What are these two hooks made of?

A. Iron or steel, I believe.

Q. How much room do they take up on the side of the block?

A. They will take up—each one is about an inch wide—it will take up about two inches.

Q. How much space is there along the block, then, where there is no metal and no other material between the blocks?

A. There would be two feet and eight inches.

Q. How deep do those hooks go between the stones?

A. They go down—we have different hooks—some half an inch; some may be pretty near one inch.

516 Q. And to what are they fastened?

A. To the wooden strips what lie on top of the stone.

Q. And for what purpose?

A. To keep the strips from slipping back; to hold them in place.

Q. When you say the strips you mean the strips that have the rubber along the edge?

A. Yes, sir.

Q. When you are laying stones that way on a floor that is all of one color, do you use these hooks and strips you speak of now?

A. Not on floors.

Q. What else is done in the process of forming this block, if anything?

A. Nothing particnlar; only I may mention we use a straight edge to strike the block off level.

Q. What part of the block do you strike off level?

A. The top to give a level surface.

Q. At what time in the process or operation do you do that?

A. When we put on the fine coat, as we call it, before we finish it.

Q. After the top coat is put on?

A. While we are putting it on; at the same time we strike it with the straight edge.

Q. What is the straight edge?

A. A stick of wood two to three inches wide, a half an inch to one inch thick, and probably two to five feet long.

Q. Designed to be straight, is it?

517 A. Yes, sir.

Q. It is simply for the purpose of leveling the upper surface of the block, is it?

A. Yes, sir.

Q. What do you do after you have finished the second course of blocks with this piece of wood, straight-edge?

A. After the second row is finished far enough we take the strips and level this streak. If the last stone may be put in too high we strike it level with the smoothing trowel.

Q. In laying the second course of blocks does the material come up directly against the edge of the first course which has been previously laid?

A. Yes, sir.

Q. Touch it?

A. Yes, sir; right up as close as we can get it.

Q. Is there any substance placed between the first course and the second course in laying the blocks, or at any other time?

A. No, sir.

Q. How long have you laid blocks in this way?

A. For about eight years; so long as I have been with the Portland Cement Paving Company.

Q. Where does that company do business?

A. All over the United States, so far as I know.

Q. Do you know where it is located?

A. In the city of Chicago.

Q. Were these blocks laid in the sidewalk in front of Philip Best's Brewing Company's office in Milwaukee laid in this manner and by this process you have described?

518 A. Yes, sir.

Q. How do you know they were so laid?

A. I done it myself.

Q. Were you there all the time?

A. Yes, sir.

Q. Do you know how long it took to do that job?

A. I could not just tell exactly, but it didn't take—I don't think it took over three days altogether.

Q. Was there any trowel or other tool or implement used for the purpose of filling up these joints between the blocks?

A. We had no joints between the blocks.

Q. The material of the one came right up against the other snugly?

A. Yes, sir.

Q. Did you help do the work on the floor of the malt house?

A. Yes, sir.

Q. Explain how that was done.

A. That was done—we have used strips two inches and a half thick, I guess—say, two and a half by two and a half, placed on the

wooden floor. We first commenced about four feet from the wall and about fifty or sixty feet, whatever the length of the space, we filled with the same material as the sidewalk is done—with sand, gravel, and cement.

Q. How high do you fill that up?

A. The thickness of the floor is two inches and a half.

Q. Then you filled a rectangle about fifty or sixty feet long and about four feet wide?

519 A. It is not particular about the length. We commence on one end four feet wide and go as far as that will go; sometimes may be 25; may be longer; it may be 50; sometimes 75; all we have space to go.

Q. When you have got that done, what next?

A. It is filled and finished off.

Q. How finished off?

A. With a floating board, and troweled off with a trowel smooth; floated off to get it straight, get it kind of smooth. After this floating with wooden board we trowel it off again with the trowel to get it smooth.

Q. It makes, then, a floor of cement and gravel of about two inches and a half thick, does it?

A. Yes, sir.

Q. Then, this section you first mark or petition off?

A. Yes, sir.

Q. How long does it take before that gets at all hard?

A. It takes pretty nearly one week before it gets hard enough to walk on.

Q. Will it stand up at once as soon as you have laid it or is it so soft and moist it sinks down?

A. It won't sink down; it will stand.

Q. It is made so as to stand up?

A. Yes, sir.

Q. When you have got that section finished in that way to your satisfaction, do you take away those strips of wood you had laid there?

520 A. Yes, sir.

Q. When you take it away does that first section slip or slide down or fall down?

A. It does sometimes; yes, sir.

—. ——.

A. We lift it.

Q. What do you do next?

A. Place the strip again four feet from the place it has been laid. Before we fill up a new section we cut off that with a shovel, a straight joint, and the other part, so we don't get a joint to connect it together; make it one piece.

Q. How do you prevent forming a joint?

A. Go along with a shovel and take off a little here and there.

Q. You get the edge rough where it had been smooth before?

A. Yes, sir.

Q. You don't want a smooth edge and don't want a joint?

A. No, sir.
Q. Then you pour in new cement and gravel as before?
A. Yes, sir.
Q. Make a new section?
A. Yes, sir; work it right up together and bind it together.
Q. What do you mean by bind it together?
A. Work it together so as to make one piece of it.
Q. You want to get these two sections, then, into one solid mass, do you?
521 A. Yes, sir.
Q. Do you place or leave anything between the two sections when you are making a second one?
A. No, sir.
Q. Or at any time after you have finished the first one?
A. No, sir.
Q. You then make the second section in the same way as you have made the first?
A. Yes, sir.
Q. What next?
A. The third roll we work the same way as the second, and so keep on.
Q. When you have got through the day's work, if the floor is not yet finished do you do anything by way of protecting it—take any provisions or different steps from what you have been taking during the day?
A. Yes, sir; the last time we fill it up square up to the strip and finish it and leave it the way it is—leave it square, not break it down the way we did before.
Q. When you go to work the next morning, what then?
A. Worked right up to that again, take the strips off, take and place them back the way we did before, four feet from the other part, and work right up to that again, and try to close it as much as we can so as not to show a joint there.
Q. Do you break down that edge when you begin the next morning?
A. No, sir.
522 Q. Why not.
A. It was too hard, so if we should break it down we could not bring it together so good as we could by having it straight and square.
Q. Is that the same reason that you did not break down that edge the night before when you left it?
A. Yes, sir.
Q. But you try the next morning, I understand you, to work it over so as to prevent any joint remaining there?
A. Yes, sir.
Q. If one goes over that work then and finds a joint or part of a joint in sight would that indicate where the day's work had ended and the next morning's work begun?
A. In the first place, if there should be any joint coming it would be right there where the day's work has ended.

Q. Do you endeavor to make joints or to leave no joints there?
A. To leave no joints.
Q. Was the whole of that floor of the malt house done by you on the same plan and in the same manner?
A. Yes, sir.
Q. Do you recollect any other work being done for this defendant, The Brewing Company, at any time within the last two or three years?
A. There was a little piece of sidewalk, not for the company, it is private, for Capt. Pabst, in his garden—a little piece around
523 the fountain. It is not for the Best Brewing Company.
Q. Was that in blocks of different colors?
A. No, sir; plain.
Q. Was it done, then, in the same manner as this other plain work you have been describing?
A. No, sir; that is done in blocks.
Q. Were the blocks laid in the same manner as the blocks in front of the office?
A. No, sir.
Q. What was the difference?
A. Those are in square blocks, just a strip placed around in the shape—one side is the fountain; we placed the strip, I believe, about three feet and a half from the fountain, the shape of the fountain, and filled in between there, between those and the fountain, with this same material,
Q. All of one color?
A. Yes, sir; all of one color.
Q. Was this done all at once?
A. It was laid in sections.
Q. When the next section was laid, was there anything placed or left between the sections already completed and the one you were then making?
A. No, sir.
Q. Did you design in that matter to leave joints or leave no joints?
A. Not to leave joints, only a mark to make it show like stone flags.
Q. How much of a mark is that?
A. Just a little mark on top of the walk—just pressed in.
524 Q. Does it go down to any depth?
A. No, sir.
Q. What is it made with?
A. With the straight edge we generally use, beveled on both sides, made sharp to make kind of a corrugated curve.
Mr. HEY: Right along the joint?
A. Right across; yes, sir.
" " Made with a trowel, sometimes?
A. We can't make it with a trowel; we can't do it straight.
Mr. SMITH: Make it with a straight edge, the corners of which have been beveled off?

A. Yes, sir; made sharp on one side; it is placed on the stone and rapped upon to press it in and show a mark.

Mr. HEY: Was the same thing done on the diamond blocks?

A. No, sir; no marks made there; all filled up there.

Q. Can you produce to us here some of those V molds and of those strips edged with rubber, having these hooks on you have described?

A. I guess I can; yes, sir.

Q. I wish you would if you can spare one or two of each, one of each. I wish you would do so to-morrow?

A. Yes, sir; I believe I can.

Q. When you remove the strips, or at any time when you have finished the square blocks, is there any impression or mark or indentation remaining on the pavement?

525 A. Of a diamond shape, do you mean?

Q. Yes, sir.

A. There is sometimes a little mark of the strip we place on top of the stone, and there is a little mark where the two hooks went in, and we close them up while we are leveling off this place where the stones connect.

Q. How do you close them?

A. By passing the trowel along on it, stripe the flat trowel along. These hooks left a little fine mark, so it won't take anything to fill it up; by pressing the trowel on it it will fill up the whole space.

Q. About how thick are these hooks?

A. They are thinner than a knife blade; the 32d of an inch maybe; about as thick as thin sheet iron maybe.

Q. Those marks made by the strips you speak of, if there are any, must be as wide as the strips, must they not?

A. Sometimes; and sometimes a strip warps a little and it may mark it on one edge of the strip a little.

Q. What is the advantage of smoothing that over with a trowel afterwards?

A. To have it nice and smooth; not to show any cracks or anything—any marks.

Q. It is merely for the looks, then?

A. Yes, sir.

Q. Do you know how long the methods that you have described here have been in use?

Objected to as improper and incompetent—no foundation for the question by answer or otherwise.

526 A. About eight years, I guess.

Q. Do you know whether they were used before that time?

Same objection.

A. Not in that way, that I know of.

Q. You were not in the business before that time?

A. Yes, sir; I was.

Q. Whereabouts were you in the business before that time?

A. I have been working for Perkins and Stevenson one year be-

fore I went to the Portland Cement Company, and before that time have been working two years or more for Jenkins and Selby.

Q. All in Chicago?

A. Yes, sir.

Q. Neither of those firms did this sort of work then?

A. They done this sort of work, but in a different way.

Q. They did not do it in the way you have described?

A. No, sir.

Q. What company or firm was it that first did the work, so far as you have any knowledge, in the way you have described?

A. The Portland Cement Paving Company.

Q. Do you know who Jenkins and Selby were at work for or under what patent?

A. On the Schillinger patent.

Q. At the time you speak of?

A. At the time I was working for them; yes, sir.

527 Q. What was the style of work that was done at that time and by them under the Schillinger patent? Tell us, so as to explain the difference between that and the work you did in Milwaukee.

A. There was not a great difference; the work is done the same way, only instead of these strips we are using to separate the colors they put in a strip of tar paper in the joint clear down to the ground, and have it stuck up above the top stone about an inch and a half or two inches.

Q. Did they leave that tar paper in between the blocks after they had finished the work?

A. Yes, sir.

Q. Do you remember the years that was done in?

A. It was done in 1872 and 1873; I was working for that party.

Q. Do you remember the name of that Mr. Selby?

A. I know him personally, and I know he lives somewhere near Milwaukee.

Q. Was it Dr. J. B. Selby?

A. I don't know his initials.

Cross-examined by Mr. HEY:

Q. How did Perkins and Stevenson lay down the blocks?

A. They have laid it pretty near the same way, only at the time I was working for them they used steel strips to put in the joint between the stones.

Q. Have you got one of the Portland Cement Paving Company's circulars with you?

A. I don't think I have. I have a card.

528 Q. I understand you Perkins and Stevenson used a process very similar to that described by you as practiced by the Portland Cement Paving Company. Is that what you mean?

A. It is done pretty nearly like it. The only difference is that the Portland Cement Paving Company use those rubber strips to lay on top the stone, and Perkins and Stevenson use steel strips put between the stones in the joint.

Q. And the metal strips used by Perkins and Stevenson were similar to your wooden strips, with the exception that the hook on the Perkins strip was continuous, while yours is only on the ends. Is that so?

A. There was nothing laid on top of the stone by Perkins and Stevenson; there was nothing laid on top of the stone; there was only a strip the whole joint through put in there.

Q. While in your case you only put the metal points on the ends of the block between the blocks. Is that it?

A. The little hooks on the wooden strips go down a little.

Q. They go down between the blocks, don't they?

A. They go between the stuff, certainly—between the cement.

Q. And the cement composes the two blocks; you did not make block pavements then; the Portland Cement Company don't make block pavement?

A. No, sir.

Q. It is all in one piece?

529 A. As I understand, block pavement is blocks made and put down.

Q. I don't ask you that. I ask you whether the Portland Cement Paving Company makes block pavement—diamond block pavement, for instance?

A. No, sir.

Q. It is all solid; it is put down solid together?

A. Yes, sir.

Q. It is not divided up into blocks at all?

A. Not any more than the patterns we use what gives the size of it. There is nothing put between it to separate it.

Q. Is it separated in fact?

A. No, sir; after the work is done it looks like one piece, no joint or nothing to be seen whatever.

Q. Why does the Portland Cement Paving Company call their pavement diamond block pavement, Hurlbut's patent block and tile, &c.?

A. I suppose they call it so because it is marked off in blocks. The colors mark it in blocks, dark and light color.

Q. When did you last examine the block pavement in front of the Phillip Best Brewing Company office?

A. I could not tell.

Q. Can you testify that the pavement in front of Phillip Best's Brewing Company office does not distinctly show a joint between each block?

A. No, sir; I could not tell.

Q. Why not?

A. The cement, by setting or drying, will shrink, or the ground might settle a little and crack it.

530 Q. Supposing I mold two blocks in this way (counsel indicates): I first lay my scantlings the size of this envelope and lay my block; then I take the scantling up here and put it here and lay another block; the upper course is fine, as you have described, and it is floated smooth onto the other block; the material

will shrink so it will open along this line between the two blocks. How will that look, smooth and straight or rough and zigzag?

A. It does sometimes look smooth and straight, and sometimes not.

Q. The chances are it will be rough where it breaks off—uneven?

A. Sometimes.

Q. If you take your straight edge, however, and lay it on the joint line and then take the beveled cutting instrument and run across in this way, how will those blocks open then—in a straight line or rough and zigzag?

Objected to as immaterial and assuming facts not proven.

A. It will open in a straight line.

Q. Am I to understand that the diamond block pavements laid by you eventually separate into separate blocks?

A. It does sometimes, and sometimes not; I have seen pavements where it don't open between the colors.

Q. If they do open do they open between the colors?

531 A. They do open between the colors; sometimes crack across the stone where the ground heaves or settles. It sometimes opens between the colors and sometimes cracks across the stone.

Q. Generally speaking, how does it open?

A. It generally opens between the colors.

Q. Then it forms a joint there?

A. Yes, sir.

Q. Now, the parting strips with the hooks on. How is that withdrawn from between the blocks—with a draw, or right up straight?

A. We ain't particular about getting it off; just take hold of it and get it off.

Q. You draw it out, don't you?

A. No; generally lift it straight up with the ends.

Q. How do you do it sometimes—do you draw it sometimes?

A. We can; those little hooks would cut into the stone.

Q. You do draw it a little?

A. No.

Q. Not a bit?

A. By lifting it up it might slip. We try to get it up without drawing it.

Q. You exercise great care in taking it out?

A. Not very great care; a man what is used to taking them out don't care much.

Q. You have to draw it straight—perfectly straight; you can't deviate a hair's breadth?

A. If it don't come up straight it don't matter.

Q. Won't you explain what you meant by saying a moment ago that you were not particular how you took it up?

532 A. Why, as I say, I am used to it, and I don't see anything particular why I can't take them up. You just take hold of them and get them up without hardly looking at them.

Adjourned until to-morrow morning at ten o'clock.

FRIDAY, *November* 22*d*—10 a. m.

Cross-examination of witness continued:

Q. The strip with hooks on it is champered off on the edge to which the rubber is secured, and the edge with the rubber comes between the two blocks, does it not?

A. No, sir; it comes right on top of one block.

Q. And also marks off the two blocks?

A. Forms the edge of the two blocks, in the different colors; the color marks the blocks.

Q. And this strip goes on the edge of the union of the two colors?

A. Yes, sir.

Q. Does the strip leave a distinct line across the two blocks when it is first taken up?

A. The strip don't; the color itself shows the line.

Q. Who besides yourself was engaged in doing this Milwaukee work for the Best Brewing Company?

A. Mr. Witt, this gentleman sitting right here.

Q. Who did you do the work for?

A. I was working for the Portland Cement Paving Company.

Q. Who was the manager of the company?

533 A. J. P. Hurlburt.

Q. And the Best Company's pavement was laid in the usual way that Hurlburt makes his pavements?

A. Yes, sir.

Q. Did you do the work in the Best Company's fermenting-room?

A. No, sir.

Q. Who did?

A. I don't know.

Q. Was that done when you got there?

A. I don't know if it is the fermenting-room, that storehouse; whatever it is was done at the time with asphalt, as much as I know.

Q. State what work you did do on the malt house on the corner of Tenth and Chestnut streets.

A. Laid the malt floors, a couple of floors in drying kiln, where they dry the malt.

Q. Belonging to the malt house?

A. Certainly.

Q. Where was this work done?

A. In the office building.

Q. Who did that?

A. I did.

Q. And you can't state how the floor was made there?

A. No; I can't. I believe it is made the same way we have laid the malt floor.

Q. Why can't you state?

A. Because I don't recollect.

Q. Had there been a fire at the malt house just before you did this work?

534 A. There has been a fire before that time.

Q. And had a good deal of water been thrown in the malt house?

A. I don't know; when we got there the new building was partly up.

Q. Where was this work done?

A. On the corner of Tenth and Chestnut.

Q. And where was this new building?

A. That is the new building what was burned down. I have not seen the fire and have not seen the old building.

Q. Was there any provision made at the time when the malt-house work was done for any shrinkage?

A. No, sir.

Q. Did you afterwards go back to Milwaukee and fill in some of the work?

A. Yes, sir.

Q. When was that—soon after it was laid?

A. Maybe a month or two. I can't tell; a month or two after the time it was finished.

Q. Describe that work you did on that occasion.

A. I filled up the cracks where the floor was cracked with cement.

Q. Was it not understood that when you first left the malt-house job that some settling and shrinkage was expected?

Question objected to and the form of it in particular.

A. It was expected that the floor might not crack if the building did not settle.

535 Q. Was not the joints in the malt-house floors paved under the expectation that the floor would settle and the cracking could be better controlled by troweling them?

A. No, sir.

Q. Are you certain of that?

A. Yes, sir.

Q. Name all the men that worked on that job with you.

A. George Witt, Klaus Miller, Gottlieb Stacke, William Swambach, Henry Ries, Charles Helwig; that is all the names that I recollect; there has been more men working there, but I don't recollect their names.

Q. Was Henninghausen there?

A. Yes, sir.

Q. Was John Farley there?

A. I don't know him.

Q. Are you working for Hurlburt now?

A. Yes, sir.

Q. Mr. Hurlburt has been sued for infringing this same patent?

A. I don't know.

Q. Did you make an affidavit in a suit in which Hurlburt was interested in lately?

A. Yes, sir.

Q. Who was this suit against?

A. I didn't get acquainted with it. I don't know.

Q. Who drew that affidavit?

A. I don't know the man's name.

536 Q. Did you do some work in the malt house, in a room in which there were no large vats?
A. Tanks, do you mean?
Q. Yes, sir.
A. No, sir.
Q. Did you see any work done in that room?
A. No, sir; I have not seen the work done; I have seen the floor.
Q. When did you see the floor?
A. After it was done.
Q. Who did it?
A. As I understood, it was a man by the name of George Winding, of Milwaukee.
Q. When was it done?
A. After the cement floors was done.

Mr. SMITH: Is it claimed that that room of which you are now inquiring is also laid in violation of the Schillinger patent?
Mr. HEY: I understand that room has some pavement in it which we claim is an infringement.

Q. When did you work for Perkins and Stevenson?
A. I believe it was in the season of 1874.
Q. Who were you with when you first learned to do this kind of work?
A. Jenkins and Selby, in the city of Chicago.

Re-examined:

Q. Please explain what are these objects and materials which you have brought up here this morning. First, what is this piece of wood with a rubber strip on and two iron strips fastened to the edge?
537 A. We call it a parting strip.
Q. And now marked "Exhibit A." Is that one of the strips used to prevent the color of the block forming from running over on the block already completed?
A. Yes, sir.
Q. Is it one of those pieces which has been actually in use by you?
A. Yes, sir.
Q. How long has it been used?
A. That strip has probably been used for six or seven years.
Q. Can you spare us that piece to take with us to Milwaukee?
A. Yes, sir.
Q. When this is in use the rubber is underneath, is it?
A. Yes, sir.
Q. Lying flat on top of the completely finished block?
A. Yes, sir.
Q. And the edge of the strip to which the iron hooks, as you call them, are attached lies directly over the edge of the completed block?
A. Yes, sir.

Q. Please tell us what those other things are.

A. This is the mold frame, we call it. This piece of wood marked B is a frame; it is a frame what is placed on the ground for to get the shape of the stones. This is the right frame. We have another which reverses that; runs the other way.

Q. This is the right-hand frame?

538 A. Yes, sir.

Q. What is the difference between the right and left hand frame?

A. The right-hand frame is beveled to the right and the left-hand frame beveled to the left.

Q. These are beveled, you say, according to Hurlburt's patent?

A. As I understand.

Q. What is the object of beveling or sloping these edges?

A. To keep the blocks from sinking down and heaving.

Q. So that one will not raise without another one?

A. To keep them in place.

Q. Does that facilitate or prevent the taking out of one block?

A. You could not take out one of those blocks without cutting them to pieces.

Q. This piece B is calculated for making blocks of only two or three inches square. Is this the true size you use or only a model?

A. Only a model of the kind we use.

Q. What is this board marked C, here?

A. That is a model of a sidewalk; it shows the way how we lay it.

Q. Partly covered with sidewalk or laid?

A. Yes, sir.

Q. Are these blocks which are here laid actually made with cement?

A. Yes, sir.

539 Q. Are these laid in the manner you have described, these particular blocks here?

A. Yes, sir.

Q. Laid with a frame, then, are they?

A. Yes, sir.

Q. And I notice the edges of these are beveled. They are beveled by a frame of this sort, are they?

A. Yes, sir.

Q. What are these small pieces of wood and rubber, six pieces of rubber?

A. Those rubber pieces represent the strips for this little mold.

Q. Were those pieces of rubber actually used in making this little model here?

A. Yes, sir.

Q. How many of these pieces of rubber or the corresponding strips are used at one time in laying the blocks?

A. It requires two strips to lay one block.

Q. To be laid along the projecting edges of the finished block?

A. Yes, sir.

Q. And when you lay three blocks at a time you use six of these strips?

A. Yes, sir.

Q. I observe that some of those strips have the hooks, as you call them, and some don't.

A. Yes, sir.

Q. In common use do they all have hooks, or do they not?

A. They don't all have hooks; sometimes where the hooks get broken off we have to use them without hooks.

540 Q. Can you use them without hooks?

A. Not as good. They very easy get out of place; we can use them without the hooks.

Q. In that case you have to have somebody hold them in place?

A. Yes, sir.

Q. While if you have the hooks they stay in place themselves?

A. Yes, sir.

Q. Those hooks project down at the joints?

A. Yes, sir. Those hooks will actually press into that stone what is finished already and laid. They would be exactly where the joint will be. They press into the stone we have laid.

Q. On account of the beveled edge?

A. No, sir; so as to have it lay solid, so it can't slip.

Q. The hooks should be pressed up against the edge of the stone firmly enough so as to hold the strip in place while the work is going on?

A. Yes, sir.

Q. What is the other piece of wood marked D?

A. That is a straight edge, we call it, over the frame and on those strips. This piece marked D is called the straight edge.

Q. Is this piece marked D, called the straight edge, the full size of the straight edge used, or is it merely one attached to this model?

A. Attached to this model only.

Q. The frame is so laid that the exterior angles touch the exterior projecting angles of the completed blocks?

541 A. Yes, sir.

Q. Leaving a square in the center?

A. Yes, sir.

Q. With edges sloping to the right or left, as the case may be?

A. Yes, sir.

Q. I observe a notch cut on one side of this straight edge, a piece cut out. Why is that?

A. To work the straight edge on top of the strips—to get it a right gauge.

Q. In use, then, that edge out of which the notch is cut is the lower edge?

A. Yes, sir.

Q. And that notch is cut, as I understand you, to allow the straight edge to pass over these strips you have described?

A. Yes, sir.

Q. How deep is the notch cut in the straight edge?

A. The thickness of the parting strips.

Q. So that it allows the remainder of the straight edge to pass

over the block you are making just at a level with the blocks that are completed?

A. Yes, sir.

Q. In use, how is the straight edge ordinarily held?

A. It is held across the sidewalk or across the blocks. It is held across the frame with the end what is notched out on top of the strips.

Q. The end on which the notch is held in the direction of the work that has been completed then?

542 A. Yes, sir.

Recross-examined:

Q. When you first commenced to make these blocks you placed your frame in position, then filled in coarse material?

A. Yes, sir.

Q. Composed of sand, gravel, cement, and water?

A. Yes, sir.

Q. Then you tamped it down?

A. Yes, sir.

Q. In the mold?

A. Yes, sir.

Q. Then you float over it the fine upper course?

A. Yes, sir.

Q. Composed of half sand, half cement, mixed with water?

A. Yes, sir.

Q. Then you strike off the top?

A. Strike it off with a straight edge to get it straight.

Q. When that is partly set you move your frame along to a proper position?

A. No, sir; we have to finish that first before we can remove the frame.

Q. How?

A. With the floating board and trowel.

Q. Now what do you do?

A. Take off the strips, what they call the parting strips, and finish whatever there is—a little mark made from the strips on the stones.

Q. Do you remove the frame?

543 A. Yes, sir.

Q. And place it in position for the next?

A. Yes, sir.

Q. You fill in the coarse material again?

A. Yes, sir.

Q. How much cement is there in the coarse material?

Objected to as immaterial.

A. About one to seven.

Q. You tamp down this next course of coarse material?

A. Yes, sir.

Q. Can you tamp down along the block that is already formed and all around?

A. Yes, sir.
Q. Tamp it down level and hard so as to make it compact?
A. Yes, sir.
Q. The block already formed has partially set?
A. Yes, sir.
Q. And in tamping in the coarse material it don't unite thoroughly with the material of the block already formed?.
A. It will work up as soon as it can. Sometimes it works into the other block.
Q. Sometimes a piece of stone or gravel will work into the other?
A. Yes, sir.
Q. It don't adhere to it as firmly as it does to the particles of the mixture in the other block just being formed?
A. No.
544 Q. After you have got that to a proper height you mix your fine material again and put that in?
A. Yes, sir.
Q. The fine material is half cement and half sand, mixed with water?
A. Yes, sir.
Q. And that is floated in right up close to these strips on the first block?
A. Yes, sir.
Q. Then that is finished off in the same way?
A. Yes, sir.
Q. And this strip here with the points on it, marked A, is also employed in that block to separate the colors?
A. Yes, sir.
Q. And these points go down between the blocks like that, for instance, to hold it in position?
A. Yes, sir.
Q. Have you examined sidewalks laid in this way, say two or three months after they have been down?
A. Yes, sir.
Q. Can the joints between the blocks be distinctly seen usually?

Objected to as immaterial.

A. Sometimes they can and sometimes not.
Q. But generally they can?
A. Sometimes I find the joints closed a year after and sometimes they open in a short time.
Q. But they eventually do open?
A. Not all.
Q. Generally they do, generally speaking?

545 Objected to.

A. They sometimes open and sometimes not.
Q. Take ten cases after a walk has been down six months—how many out of ten will open?

Objected to as immaterial.

A. After six months there would not half of them be opened.
Q. How would it be after nine months?
A. They would be open more.
Q. Eventually they all open?
A. No, sir; I have seen work done that didn't open after three or four years.
Q. Where did you see a sidewalk that didn't open after three or four years?
A. I don't remember, but if I go around I can find some.
Q. Name a single instance of a sidewalk where the joints did not open in three years.
A. I could not name a place just now unless I go and look them all up. I can't remember where I saw them.

Re-examined:

Q. I see this model here has a wooden floor. Is that merely used in this model for the sake of holding it in place or is it something you use in making sidewalks?
A. That represents the ground where we lay the sidewalk usually.
Q. It has, I see, wooden strips around the edge of this floor; what does that represent?
546 A. The curb around the sidewalk this side there is no wall to work up against.
Q. Were the blocks which you laid in front of Phillip Best brewing office in Milwaukee made with beveled edges as those are?
A. Yes, sir.
Q. You are a German by birth?
A. Yes, sir.
Q. You never did any of this work until you came to the United States?
A. Yes, sir; I did some work in Germany before I came here.

Objected to.

Q. What sort of work?
A. Not the diamond work; not the different colors.
Q. How long ago was that?

Objected to.

A. Pretty near 20 years ago.
Q. How much work did you do then?
A. I could not say how much, but I have laid cement floors, not sidewalk.
Q. Did you do the work then substantially in the way in which you laid this floor in Milwaukee?
A. Yes, sir.
Q. Give me some idea how many such floors you laid, if you can, or how long you worked at that sort of work.
A. I worked at that work for a couple of years in Germany.
Q. What part of Germany?
A. Northern part.

Q. What place or places?

547 A. The Holstein provinces.

Q. How large is that province—that is, in how large a portion of the province that you did work of this sort?

A. I done that work different places in the province, but I could not tell how many places.

Q. Can you name some of them?

A. Yes, sir.

Q. Do so, if you please.

A. Ehmsorn.

Q. Is that a village?

A. Yes, sir; it is a city now; it was a village at that time.

Q. Do you know of other work being done of that sort besides what you did?

A. Yes, sir.

Q. Give me some idea how much you knew about it and how much work there was you knew about.

A. I could not say how much work I done; I say I have worked at it for two years and at different places.

Q. Were you the head man or were you a workman employed under others?

A. A workman employed under others.

Q. In what sort of buildings were these floors laid which you saw in Germany?

A. In residences.

Q. In the cellar or other parts?

A. Cellars and main floor, too.

Q. In any factories or breweries or any such establishments as that?

548 A. Yes, sir.

Q. What?

A. In breweries.

Q. How were those cement floors laid; by the use of what implements?

A. They are laid the same way we do now; the same tools are employed we are using here.

Q. I don't ask you about what you are using in Chicago, but as compared with those you used in Milwaukee in laying the floor of the malt house there. How did those tools and that method you used in Milwaukee you have already once described compare with those used in Germany 20 years ago?

A. About the same.

Q. You laid the floors there in sections, did you, in Germany just the same as in Milwaukee?

A. Yes, sir.

Q. The manner of laying it was just the same as the manner of laying that Milwaukee malt-house floor?

A. Yes, sir; only we used different material.

Q. What material did you use in Germany?

A. Instead of the poorest course of gravel we have to use brick; we had no gravel there.

Q. Do you know whether or not that was the common method of laying such floors?

A. It was at that time.

Q. Do you know whether or not those floors were in common use there in that part of Germany?

A. There was not so much done there as here now—not so much used of it as there is here now.

549 Q. Can you give me any idea of how much use there was of them?

A. No; I could not.

Q. How old were you there?

A. Probably 17 or 18 years of age.

Counsel for the plaintiff objects to all the testimony of the witness relating to use in Germany as incompetent, and gives notice that he will move to have the same suppressed on the hearing of this case.

The signature of the witness to this deposition is waived, and it may be written out by the short-hand writer and read as if read to the witness and signed.

GEORGE WITT, called by defendant, being sworn, testified:

I live in Chicago. I am 47 years old; am a German, and have been in this country about 17 years.

Q. What is your business?

A. I have worked ten or eleven years on this cement business; I have no other business.

Q. Have you lived in Chicago all that time?

A. I was away some time and back again.

Q. Were you working at Milwaukee on this malt-house floor and sidewalk of the Phillip Best Brewing Company?

A. I was working on the malt floors—not on the sidewalk.

Q. Who hired you?

A. Mr. Hurlburt.

550 Q. Were you there with Miller the last weeks?

A. Yes, sir.

Q. Did you see the whole of that malt-house floor laid?

A. Yes, sir.

Q. How was that laid?

A. We laid the scantling down about four feet wide and then finished it, and afterwards we took the scantling out and laid it back about four feet.

Q. What part of the floor did you begin at—at the end or at the side or in the middle?

A. Along the side.

Q. How big was the scantling that you used?

A. About a half an inch.

Q. High?

A. Yes, sir.

Q. Do you remember how long?

A. No; some was 16 or 14 feet long.

Q. What did you lay that cement floor upon; what was under it?

A. There was a wooden floor under it.
Q. How thick was this cement floor when finished?
A. I don't know exactly.
Q. About how thick?
A. About two and one half or three inches.
Q. When you started out how far did you lay this scantling from the side of the house on which you began working?
A. About four feet.
Q. What did you do then after laying that scantling?
551 A. Filled it up.
Q. With the material for the floor?
A. Yes, sir.
Q. After you had got this space between the scantling and the wall filled, what next?
A. Moved it back.
Q. Moved the scantling back?
A. Yes, sir.
Q. When you moved the scantling back did the edge of the floor you had just been laying stand up straight?
A. We cut it down with a shovel or trowel.
Q. What for?
A. To keep it close together.
Q. When you cut the edge down did you make it smooth or rough?
A. The edge of the floor; we smoothed it before; then we cut it down and filled it up again, and then we put the fine stuff on and smoothed it over again.
Q. After you had taken away the scantling the edge of the floor stood up straight, did it?
A. Yes, sir.
Q. Then you went along that edge with a shovel and broke it down?
A. Yes, sir.
Q. When you had gone over it with a shovel and broken down the edge, was the edge left then, after you had gone over it with the shovel before you did anything else—was the edge left straight or rough?
A. Rough.
552 Q. Then, having moved your scantling back about four feet again, what did you do next?
A. We filled it up again.
Q. With the cement and gravel?
A. Yes, sir.
Q. And sand?
A. Yes, sir.
Q. Did that new cement, gravel, and sand which you poured into the second space come up against these rough edges of the floor first laid?
A. Yes, sir.
Q. Filled up all the little notches and breaks in the floor?
A. Yes, sir.

Q. What was the object of breaking down this first smooth edge?

A. To keep the joints together, so as to keep the old to the new so it don't show a joint afterwards.

Q. If you did not break this down, but poured in or put in the new material against the old, how would it operate where you put the old and the new together if you had not broken it down with the shovel?

A. We work so close together as we can.

Q. You do not understand my question. Suppose if you put the scantling four feet back without breaking down the first edge at all; suppose you do not use the shovel and you put in the new material up against the old material—the old edge of the section you had completed—then how would it act afterwards; how would it look; what kind of a floor would it make?

A. It looks all in one.

553 Q. If you did not break down, if you did not break down the joints, then how would it look?

A. About the same; you can't see much joints then.

Q. But when you break the edge down, then how is it?

A. All the same; just it sticks a little more together.

Q. Can you take up, then, one section of this floor without breaking the other section after it is made?

A. No.

Q. After you have got a second section made in the same way do you break down the edge of the second section with a shovel?

A. Yes, sir.

Q. And so with the third and all the rest of them?

A. Yes, sir.

Q. Do you try to make a floor that shall be in sections separate from each other or do you try to make it all one solid floor?

A. Make it all in one solid floor.

Q. Was that the way you made that floor in the malt house?

A. Yes, sir.

Q. How many floors did you make?

A. Six or seven.

Q. Did you see the work done on the sidewalk?

A. No.

Q. You did not see the men when they were at work?

554 A. Sometimes I was inside and sometimes outside.

Q. Did you see what kind of tools the men used who were at work on the sidewalk?

A. No.

Q. Did you see any of them, what kind of tools they used?

A. I guess they were the same tools they used. They used that parting strip what they used inside—the same tools.

Q. Did you see those parting strips in use there on the sidewalk?

A. Yes, sir.

Q. Were those parting strips you saw used there like this one marked A here?

A. I don't know as I can say that.

Q. Did you notice the little strips of leather along the side?

A. Yes, sir.
Q. Did you use these things yourself, those parting strips?
A. We use them here in Chicago on the sidewalk.
Q. But not in Milwaukee?
A. No, sir.
Q. You did not use them yourself?
A. No, sir.
Q. Have you used in making sidewalks here in Chicago frames like this one which is marked B?
A. Yes, sir; just the same shape.

Q. You notice the edges of these frames and the edges of
555 the stone blocks laid in the model here are not straight up and down but slope off?

A. Yes, sir.
Q. Are the stones and the frames—that is, the stone blocks made by you and the frames used by you in the sidewalks—beveled the same as these?
A. Yes, sir.
Q. Do you know whether the blocks laid in the Milwaukee sidewalk are beveled in the same way, having a sloping edge as these do?
A. I can't say that.
Q. You did not notice it?
A. No, sir.

Cross-examined:

Q. You say John Miller was at Milwaukee with you?
A. Yes, sir.
Q. Was he there all the time?
A. He was away about a week, I guess.
Q. But he was there all the time excepting a week?
A. Yes, sir.
Q. Are you sure of that?
A. Yes, sir.
Q. Who else was there?
A. Klaus Miller, Stetke, Swambach, Helwig, Hendrick Ries. I don't know any other names.
Q. Which floor did you lay first in the malt house?
A. Laid the basement first.
Q. That was laid in sections?

A. No, sir.
556 Q. How was it laid?
A. Just the same way.

Q. You say it was not laid in sections; laid by scantlings?
A. Yes, sir; laid the same way as the upper floor.
Q. Was there any tanks in that room?
A. No, sir.

Defendant's counsel suggests that the witness does not understand the question.

Q. Do you have any difficulty in understanding English?

A. I understand what you mean.
Q. Which floor did you lay after the basement?
A. I don't know exactly; I guess it was the second floor.
Q. Then you went right on up through 3, 4, 5, 6, & 7?
A. Yes, sir.
Q. Did you use the shovel or trowel on each one of those floors?
A. Yes, sir; cutting down the edges.
Q. By the edges you mean the point where the two blocks come together or two sections come together?
A. Yes, sir.
Q. And you first mixed up coarse material?
A. Yes, sir.
Q. You put that in the frame?
A. Yes, sir.
Q. Then tamped it down?
A. Yes, sir.
557 Q. With a tamp?
A. Yes, sir.
Q. That was all tamped down in a frame. Suppose this was a block. Now, tamp it all down level, hard?
A. Solid; yes, sir.
Q. Then you put on your fine material on top?
A. Yes, sir.
Q. How thick was that?
A. About half an inch or three-quarters.
Q. That was half sand and half cement?
A. Yes, sir.
Q. Mixed with water?
A. Yes, sir.
Q. How did you do the ends of these sections—on the ends?
A. We got up close to the wall.
Q. How wide were the floors?
A. I don't know exactly.
Q. 50 or 60 feet?
A. I guess about that.
Q. Did your scantling run way across the whole width in one piece?
A. Yes, sir; laid the whole row along clear across the floor.
Q. Did you use more than one scantling?
A. Oh, yes, sir.
Q. You did not have any end joint at all?
A. No; not that I know of.
Q. Are you certain of that; are you certain you did not make any end joint?
A. Yes, sir; we could not get to the end.
558 Q. Then you had to make them?
A. Yes, sir.
Q. When you made those end joints did you cut down with a shovel the same as on the side?
A. Not when it was hard.
Q. In that case you cut down on the coarse material?

A. Yes, sir.
Q. In cutting down with a shovel or trowel did you cut right down to the floor?
A. No, sir; just the top—just about about half way down.
Q. When you come to make the second block your material would be pretty well set in the first—be pretty hard?
A. Not so very hard.
Q. But set so it would stand alone?
A. Yes, sir.
Q. You work in that way right across the building?
A. Yes, sir.
Q. Wherever the work run out you put in an end joint?
A. Yes, sir.
Q. That is about the way you make what you call flag pavement?
A. I don't know.

Objected to as immaterial.

A. They are just about the same.
Q. As the flag walks that Mr. Hurlburt makes?
A. Yes, sir.

559 Re-examined:

Q. How long have you been in this country?
A. 17 years.
Q. Did you work at this kind of work in Germany?

Objected to.

A. No, sir.

(Signature waived and same stipulation as before.)

JOHN PIETSCH, called by defendant, being sworn, testified:

I live in Chicago, and have lived here about 11 years; before that I lived in Germany; I am 42 years old.
Q. What is your business?
A. Bricklayer.
Q. What was your business in Germany?
A. Bricklayer.
Q. Are you engaged in laying cement floors or sidewalks here in Chicago?
A. Yes, sir.
Q. How long have you been engaged in that work?
A. About ten years—nine years.
Q. Did you do anything of the kind in Germany?

Objected to.

A. No, sir.
Q. I mean laying cement floors.

560 Objected to.

A. I laid cement floors there; yes, sir.

It is here stipulated that objection of plaintiff's counsel to what was done in Germany applies to all testimony produced on the part of defence.

Q. For whom are you at work in this city—for yourself or some one else?

A. For Mr. Hurlburt. First for Jenkins and Selby, and after that for Perkins and Stevenson.

Q. How long have you been working for Hurlburt?

A. About three years now.

Q. Did you do any of this work in Milwaukee or were you present at it?

A. Yes, sir.

Q. Do you know whether Jenkins and Selby were at work under the Schillinger patent?

A. I guess so.

Q. What work did you help do or see done in Milwaukee for the Phillip Best Brewing Co.?

A. Nothing.

Q. I thought you said you were doing work there?

A. I was working in Milwaukee, but not for Best Brewing Company.

Q. What work did you do in Milwaukee?

A. Laid a malt floor there for Asmuth and Kraus.

Objected to as immaterial.

Q. What are they?

A. Maltsters.

561 Q. When did you do that work?

A. The last time I was there was last winter; it is last winter.

Q. Who sent you there to do that work?

A. Mr. Hurlburt.

Q. Was he the same person that did this work in the Phillip Best Brewing Company?

A. Yes, sir.

Q. Did you see any of the work that had been done for the Phillip Best Brewing Company?

A. I was there once and saw it after it was done.

Q. Do you mean at the sidewalk or in the malt-house?

A. I was at the malt-house and I seen the sidewalk, too.

Q. Did you see the work that had been done by Mr. Hurlburt, of which Mr. Miller and Mr. Wit have spoken?

A. Yes, sir.

Q. Did you recognize the work as done by Mr. Miller for Mr. Hurlburt; did you know in — for their work?

A. I guess so.

Q. What was the way in which you did your work for Asmuth and Kraus?

Objected to.

A. Just the same way as Miller.
Q. Made in sections with scantling?
A. Yes, sir. Laid a scantling, filled it up, moved it out, cut down the edge, and worked it up.

562 Objected to as improper, incompetent, and irrelevant, and to all testimony relating to work done for Asmuth and Kraus and for the same reason.

Q. You answered just now that you did your work the same way that Miller did his work. Tell me how you know that.
A. I heard George Witt's testimony just now.

Counsel for plaintiff makes further objection that the witness is testifying from hearsay.

Q. Could you tell by the looks of the work on the malt floors of Best Brewing Company whether it was done in the same way that you did this at Asmuth and Kraus'?
A. I guess so.
Q. Could you tell, do you think, by the looks of it whether or not it was Miller's or Hurlburt's work or done in their way?
A. No.
Q. Did you notice this sidewalk in front of Phillip Best's office?
A. Yes, sir.
Q. Do you know by the looks of that walk, by seeing it, how it was laid?
A. No, sir.
Q. Have you ever seen John Miller, the witness here yesterday, lay sidewalks?
A. Yes, sir.
Q. Have you seen him lay cement floors?
A. Yes, sir.
Q. Have you worked with him when he laid them?
A. Yes, sir.
563 Q. Do you see this model of sidewalk here?
A. Yes, sir.
Q. Please look at that model and see whether or not that is according to the shape and form of your blocks that you make here in the sidewalk.
A. Yes, sir; just the same.
Q. Look at the model of the frame that is here marked "B" and tell me whether that is the shape and form of the frame you used.
A. Yes, sir; the same exactly; we have one left-hand and one right-hand frame.
Q. What is this—left or right hand?
A. Right.
Q. The left-hand frame is the same thing, only the slope is to the left?
A. Yes, sir.
Q. Do you know whether the blocks in Milwaukee of the sidewalk there have beveled edges like this, or don't you know?

A. No. I expect that all them frames we have here they were made alike. I have seen no other frames here.

Q. Did you see in Milwaukee any of the frames used there by Mr. Miller?

A. No, sir.

Q. Did you use in Milwaukee any frames and lay blocks like these?

A. No, sir.

Q. What tools did you use in Milwaukee?

A. Just a floating board, plasterer's trowel, and brick trowel.

Q. You used no parting strips, then?

564 A. No, sir.

Q. I will ask you what you call this piece of wood marked A here?

A. Parting strips.

Q. Where and when do you use parting strips?

A. When we lay the sidewalks.

Q. If you lay a sidewalk all of one piece like a cement floor, then, do you use parting strips?

A. No, sir.

Q. How long after the cement floor was laid in Phillip Best's malt house did you see it?

A. I don't know how long after.

Q. A year, two, or three?

A. No, sir; it was in the same year, I guess; I don't know exactly.

Q. What was the object of breaking down the edge of the section that we already made before you put on the materials for the new section?

A. I guess we have to see that we get it tight, no crack, no joint in it; that water comes not through.

Q. In laying floors as you and Miller laid them do you try to have the blocks in the floors, or do you try to make it all one solid mass?

A. We try as good as we can to get it all in one.

Q. When you lay blocks in sidewalks with Miller and as Miller does it, do you try to have these blocks so you can take one out by itself or make it all solid together?

A. Make it all solid together.

Q. So far as you could see by the looks of the sidewalk in

565 front of the brewing company's office, in Milwaukee, were there used in making it any strips put down between the blocks?

A. No, sir; nothing between them.

Q. Do you ever use strips put down between the blocks?

A. No, sir.

Q. Did Miller ever use them that you know of?

A. I never seen him.

Cross-examined:

Q. Did you lay any sidewalks in Milwaukee when you was with Jenkins and Selby?
A. No, sir.
Q. Only in Chicago here?
A. Yes, sir.
Q. You worked for Perkins and Stevenson too?
A. Yes, sir.
Q. What kind of work did you do for them?
A. Laying sidewalks.
Q. Same kind?
A. Yes, sir.

Re-examined:

Q. What kind of work did you do for Jenkins and Selby?
A. Laying sidewalks.
Q. Also floors?
A. No; not floors.
Q. How did Jenkins and Selby lay sidewalks, in the same manner as Hurlburt did or in a different way?
A. In a different way.
566 Q. What was the difference?
A. The edges of the stone were straight down; we put some tar paper between them—put it down to the bottom. It extended two or three inches above the stone. After the stone was hard we took a trowel and cut it off on top of them stones.
Q. Did Hurlburt or Miller or yourself do anything of the kind?
A. No, sir.
Q. Could you tell by the looks of the sidewalk laid in Milwaukee, that you saw in front of the brewing company's office, whether there was anything of that kind used there?
A. I didn't look at that.

Mr. WITT recalled by defendant:

—. Mr. Hey asked you whether one of those floors that you laid in Milwaukee was in the room where there were tanks. Do you know what is meant by that word "tank?"
A. Those big tubs.

Examination of Mr. PIESTCH continued by Mr. SMITH:

Q. I show to you now two pieces of tin about a foot long and two and a half or three inches wide, one edge of which is turned over about a quarter of an inch, and I ask you if you have ever seen such tins before in use in laying sidewalks; and, if so, by whom?
A. I have seen them here when I was working with Perkins.
567 Q. How were those tins then used?
A. We put them this way on top of the stone.
Q. Those were laid with the broad part on top of the stone?
A. Yes, sir.

Q. That is, of the stone block that was completed?
A. Yes, sir.
Q. How far down did those tins turn over the edge of the completed block?
A. About the same—just about the same as this; sometimes a little wider.
Q. How much—quarter of an inch?
A. Yes, sir; I guess.
Q. Do you use those things at all now, or does Hurlburt or does Miller use them?
A. No, sir.
Q. Did Hurlburt or Miller use tins or other instruments like this at the time that the work was done in Milwaukee for the brewing company?
A. No, sir.

Re-cross examined:

Q. Did Hurlburt or Miller use an instrument like this?
A. They used just the same as that is now.

(Parting strip, letter A.)

Q. With the hooks on it?
A. Yes, sir.
Q. The hooks go down between the two blocks?
A. Yes, sir.

568 Re-examined:

Q. About how far do these hooks, as they are called, project below the level of the sidewalk?
A. I guess pretty near half an inch.

(Signature waived.)

J. B. HURLBURT, called by defendant, being sworn, testified:

I reside in Milwaukee; I have lived here something like 26 years.
Q. What is your business?
A. Making cement pavement, for the last number of years.
Q. For how many years have you been connected with that work?
A. Altogether ten years next June.
Q. Running back for a period exceeding ten years?
A. No, sir; a little less than ten years.
Q. Did you have anything to do—and, if so, what—with the cement work done at Milwaukee for the Phillip Best Brewing Company, of which complaint is made in this suit?
A. Yes, sir.
Q. What was your connection with that?
A. I contracted to do the work there.
Q. With the Best Brewing Company?
A. Yes, sir.
Q. Was that contract in writing or oral?

A. It was a proposition accepted by them, with their signature.

569 Q. What was the proposition?

A. To furnish all the material and lay the work, the floors in the malt house.

Q. Anything else?

A. For a certain price—furnish all labor and material.

Q. Did you have anything to do with the sidewalk, too?

A. Yes, sir.

Q. What was the agreement on your part as respects the sidewalk?

A. We were to lay that and furnish the labor and material.

Q. What was defined as to the character of the work you were to do?

A. It was understood it should be clean sand and gravel and English Portland cement.

Q. What was said, if anything, as to the manner of doing it?

A. I had represented we should lay it a regular thickness—in that case two and one-half inches thick.

Q. Was anything said—and, if so, what—as to the nature of the process?

A. No; only I described the way it should be done to them, not in a written proposition, any more than it should be two and one-half inches thick.

Q. Did you do it as you had told them you were going to do it?

A. Yes, sir.

570 Q. Were you present in Milwaukee at the time the work was done?

A. Yes, sir; I was there every week.

Q. Was it done by persons under your employ and directions?

A. Yes, sir.

Q. Beginning, if you please, at the work at the malt-house, on the several floors, state how that work was done.

A. We had timbers two inches or more in thickness.

Q. And what did you do with the timbers?

A. In laying the first section or strip we placed two timbers off about four feet—they usually lay from four to four and a half off, about four feet—they usually lay from four to four and a half feet in width across one side or length of the building—and from that timber we place another four or four and one-half feet from it, so that in laying the first section we can rest our straight edge over the two timbers in order to make the first section level, as there would be no rest for the straight edge next to the wall. The wall would be on one side and the timber, two and one-half inch timber, would be on the other.

Q. A line of timber ran across the room?

A. Lengthwise.

Q. And these two lines would be laid four or five feet apart and parallel to each other?

A. Yes, sir; we only filled the next one to the wall, filling in be-

tween the wall and the line of timber nearest to the wall first, then we moved the timber.

571 Q. After doing what?

A. After that we filled with a coarser material, and rammed it down with wooden or iron rammers, made from eight to fifteen pound weight, compact it, so after being compact the lower strata would be some half inch or less below the top of the timber. We immediately follow that with a finer coat. It may follow in a minute the man that is ramming; it is all done at once. That is struck off with a straight edge over the timbers.

Q. Is this upper coat so soft as to be shoveled?

A. We handle it with a shovel in a plastic state; it is about the consistency of thin mortar used by plasterers. Q. And it is so nearly liquid it will settle down as you put it in, somewhat, but we strike it off immediately.

Q. In order to level it?

A. Yes, sir; we level it to the height of the timber.

Q. When you have got the first section, which, I understand you, runs across or lengthwise the whole length or width of the room and is about four or five feet wide, finished what do you do next?

A. We remove the timber which surrounds the outer edge of this first section, leveling the second timber to strike off a level against.

Q. When you have removed the first line of scantling that leaves a vacant strip four or five feet wide between the completed floor and the second line of scantling, does it not?

572 A. Yes, sir.

Q. Then what did you do?

A. The first move then is to break down the edge of the work in laying floor-work. It is usually done with a shovel, going along and cutting it down irregularly.

Q. For what purpose?

A. So that the material in the next section will act and combine with the first.

Q. Is it your object, then, to lay these pieces in a solid mass or lay them in sections that shall lie on the floor separate from each other?

A. To lay them in solid mass. We would strictly avoid having it otherwise, if possible—that is, we avoid having any joints or cracks whatever.

Q. What is the particular reason for avoiding joints or cracks in these floors?

A. For the benefit of the business of malting. Those floors were laid for the purposes of malting. It would be desirable to have them as nearly air and water tight as possible. If it had leaked the water would have been taken from the grain and it would injure it.

Q. You were therefore very desirous to avoid all cracks and leaks in this floor?

A. Yes, sir; we were very particular.

Q. After having broken down the edge in the manner you speak of, what did you do next?

A. We filled the places between the timber and the finished work

in a similar manner to the first, ramming and striking off as before.

573 Q. Does this process of ramming down the material placed upon the bare floor crowd and press that material into the completed pavement?

A. It does.

Q. And when you put on that upper coat do you do anything at this joint or line of the frame-work; and, if so, what do you do?

A. No; we do nothing, only spread the material about it and over it with the straight edge, filling any joints; and in finishing with a smooth trowel we smooth over the two as we work, it being in a soft stage. Still we can smooth it, perhaps, after not lying more than an hour or two.

Q. You speak of using a smoothing trowel. How do you use that—flat, level, or edgewise?

A. We could use it no other way than flat without being injurious to the work. It is a regular plasterer's fine trowel—steel trowel.

Q. You used it in the same way a plasterer does, to smooth over the work?

A. Yes, sir.

Q. When you have finished as many sections as you can do in a day do you break down the last section done during the day?

A. Not always; we usually leave that with a square face, although in cold weather I have had it broken down in a house that was done in Peoria, in the winter time particularly.

Q. What is the reason for the difference in your action?

A. The reason for leaving it is to have a square surface to com-
574 mence again in the morning. Setting so much over night we could not rub the two together; we could not finish the older work again.

Q. If you can do all of the work on one floor in any one day is it your preference and practice to do so?

A. It would be; yes, sir.

Q. You wish, then, to avoid, rather than to leave these joints?

A. Yes, sir.

Q. The floors, then, in Milwaukee were made according to this process and with these objects in view, were they?

A. Every one that I had anything to do with.

Q. Which floors are these in the defendant's buildings or property?

A. All the floors in the malt house called the malt house on the north side of the street from their office, in the corner building there.

Q. When was that work done?

A. Two years ago. It was commenced two years ago the first of last May, in the malt house.

Q. Did they have any other work of that kind done after that you know of?

A. Yes, sir; we put down a floor in their office building.

Q. Was that done in the same fashion?

A. Precisely the same as in the malt house.
Q. What else?
A. We done the footwalk in front of their office—sidewalk.
Q. Any other work?
A. There was a small piece of work put around the fountain in the president's yard, near his house.
575 Q. Any other?
A. I believe that was all that was done. We done the floor on the ground in the kiln-room, which would be the continuance of the ground floor in the malt house, north end of the malt house.
Q. How was this sidewalk laid?
A. That was what we call ornamental work in colors.
Q. Meaning by that, what?
A. It was laid in sections showing two colors, alternating, and the blocks diamond shaped. The blocks were not diamond, but they were what we call diamond-shaped pavement.
Q. They were squares, then, with the angles diagonally opposite laid lengthwise with the sidewalk?
A. Yes, sir; or lengthwise with the street and building.
Q. According to the plan of this model that is shown us here?
A. Yes, sir.
Q. In white and black or nearly black?
A. Yes, sir.
Q. How were these laid?
A. They were laid by having what you call a zigzag frame corresponding to the line.
Q. Was that frame of one piece of wood?
A. No, sir; it was made up different from that. It was made of different pieces, although of that shape and style.
Q. Fastened together in this form?
A. Yes, sir.
576 Q. About how many angles were there, interior angles in each frame?
A. Three, I think, in that side—that would make it a 12-foot frame; those blocks, as I recollect, are four-feet blocks—not four feet square, but four feet diagonally, four feet from point to point; we use what we call right and left frames, as we always do; this would only represent the right frame.
Q. You mean this model marked B, here?
A. Yes, sir; would represent only half of the frame to do the work, but a similiar one beveled the other way would be used when this is drawn out to form the other side of the block.
Q. These frames are used for what purpose?
A. They are used for holding the material in proper line and place here so as to form a desired block.
Q. Beginning at the end of the sidewalk, the blocks that you would first make are of what shape?
A. They are what we call the half block.
Q. Triangles?
A. Yes, sir; V shaped.

Q. Are the sides of those beveled or are they perpendicular?

A. The front sides are beveled.

Q. The back or base of the triangle rests against the board at the end of the sidewalk?

A. We begin next to the building and work towards the street; that line would be the inner line of the sidewalk or the wall of the house or fence.

577 Q. The next course of blocks would be of what shape?

A. Square.

Q. The angles of this frame—that is, the exterior angles of this frame—rest against what, touch what, when you come to lay this, to lay a second course of blocks—against what do the exterior angles of this frame rest?

A. Against the points of the work finished.

Q. That would leave vacant squares?

A. Yes, sir.

Q. What do you do then?

A. After being properly placed we fill the squares with material in the same manner we did the floor between the scantling and the wall.

Q. Why are the sides of the frames and the sides of these several blocks made with sloping edges?

A. In order to make what we call beveled blocks, so it can't settle or rise up by the foundation moving by frost or other elements.

Q. When they are so made can these blocks be withdrawn one at a time from the pavement without injuring it?

A. No, sir; not at all.

Q. The object and effect, then, is to hold the blocks down to one level?

A. To keep a level surface—yes, sir. They would not become uneven or displaced; when the frost is gone away in the spring, it would settle to a uniform surface again.

Q. Do you know whose invention that process is?

578 A. Yes, sir.

Q. Whose?

A. My own, J. B. Hurlburt's.

Q. Is it protected by patent, as you understand?

A. Yes, sir.

Q. Do you know the number of descriptions of the patent?

A. It was issued the 20th of April—if I remember, in 1875.

(Shows witness paper.)

Q. Look at this copy of the affidavit you saw yesterday to see if you can give me the number of the patent.

A. Yes, sir; I think that is the number, 162,172; issued April 20th, 1875.

Q. In this process of laying these blocks, do you put any sort of material, tar paper or other foreign material, between the blocks as you lay them?

A. No, sir.

Q. Is it your object in forming these to keep the blocks entirely

separate from each other, so that they may be moved one from the side of the other, or to join them together into one solid mass?

A. To make them as nearly solid as possible. They would adhere more or less at first when the material is fresh, before setting and contraction takes place, as in some instances where there is material where the second block is laid a very few minutes after the first, it would be so nearly alike that in some instances they don't separate, probably not one in three hundred; it would only
579 be where we follow the second block immediately two or three minutes after the first.

Q. The first block begins, as a matter of fact, to set very rapidly?

A. Just as soon as there is water put to it we have to use English Portland cement; after being mixedandwet it has to be put in place immediately; in the space of half an hour it would be worthless after water had been put to it.

Q. Why do not you break down the edges of these block- in the sidewalks, as you did the edges of the sections in the malt house?

A. We wish to keep uniform patterns in laying the sidewalks; if we were to break down the edges it would be impossible to keep the lines straight in the design.

Q. Why do you want them straight?

A. Merely for ornamental appearances and uniform size.

Q. These blocks are made of different colors, I believe.

A. Yes, sir.

Q. Why is that; is that for the purpose of adding to the utility of the sidewalk or merely for ornament?

A. It is for ornament only. One color would be supposed to be as strong as the other.

Q. What tools or instruments do you use in the manufacture of the sidewalk?

A. Precisely the same tools that we do in laying the floors, with the addition of what we call a straight edge or parting strip
580 to lay on top of the block; what we call a straight edge, with a notch in it to strike off.

Q. And also this zigzag frame?

A. The zigzag frame used in the pavement blocks corresponds to the straight scantling used on the floors.

Q. I don't know whether I asked you—do you place any foreign material or substance, strips, or anything else, between these blocks when you are forming them?

A. No, sir; none at all.

Q. And tins, steels, tar paper, or other thing?

A. No, sir.

Q. Is it your object to form these blocks so that they shall remain separate, or so that so far as possible they shall unify and solidify?

A. We would have them remain solid, if possible, as near as may be. Experience teaches us it will not remain so after a time.

Q. You find that laying the material a little time apart prevents them from setting into one mass, as a general thing?

A. Yes, sir; or rather they will after a time, a month, two months,

or three months, show a line of separation, which it would not do perhaps for the first few days at all.

Q. Do you recognize the materials or tools and models of tools here present, marked A, B, C, and D?

A. Yes, sir.

Q. What is the article marked "C?"

A. Merely a foundation for making a model of the work.

581 Q. The floor underneath?

A. That would represent the ground.

Q. These strips, fastened to the edges of this floor around, represent what?

A. It might represent the house line, fence line, street line, or curb.

Q. The blocks with the beveled edges represent the actual blocks, only they are smaller?

A. These blocks are smaller.

Q. The frame B, is that a true imitation on a smaller size of the frame you use?

A. Yes, sir; of one half. That is for the right-hand frame. The bevel on the other side would bevel under. A reverse frame that would run under so this would not rise.

Q. This block would represent the block, it is so thin you would not notice it, it is wider on the top than on the bottom?

A. Right the reverse, it is longer on the bottom than it is on the top, and it could not raise.

Q. Then one block may be set wider at the bottom?

A. In one direction it is wider and in the other it is narrower.

Q. At the bottom?

A. Yes, sir.

Q. So that each block is held by what you may call the two ends, and not the two sides?

A. Yes, sir.

Q. In other words, the block would be square on top and not square on the bottom?

A. Yes, sir.

582 Q. Tell me what do these six bits of rubber with diagonal ends here present and accompanying this model of the pavement represent.

A. It represents what we call the parting strip and that with a straight edge.

Q. Is that a real parting strip, of such size as you use here?

A. Yes, sir; I recognize that as one that has been used in our work (marked Exhibit "A").

Q. That is just such as you actually use?

A. Yes, sir; that has been in work two or three years.

Q. This is made of wood, apparently, with a strip of rubber laid onto it on one edge?

A. Yes, sir.

Q. And how is this used in your manufactory?

A. It is laid along the line of the block last made.

Q. With the rubber at the edge of the last block?

A. Yes, sir.

Q. The flat pieces of iron projecting over it and outwards by the side of it?

A. No, sir; pressing back into it.

Q. Into the block last made?

A. Certainly; as you see there, it would project a sixteenth of an inch, which would be a detriment to the work. As you see, it is laid in on the line of the work and this line must correspond with the line of the work.

Q. You mean the line of the parting strip must correspond exactly with the line of the finished cement block?

583 A. Yes, sir; not in the joint, but to the side of the joint.

Q. Pressed back from the joint?

A. Yes, sir.

Q. So the outer side of them is flush with the edge of the block?

A. Yes, sir.

Q. What are those parting strips for?

A. They are to protect the work already finished; also the rubber on the bottom is to prevent the colors, when in a soft state, from intermingling and running together.

Q. Is the rubber on the bottom pressed down into the surface of the completed block?

A. Onto the surface, but not into it.

Q. And the object of these iron strips fastened upon the edge is what?

A. Merely to hold it in place from slipping back. They would have the same result and I have found that better to put them on the back side. It is not necessary in fact; we worked two or three seasons without using them much—just the plain strip without those hooks—just put a weight on them.

Q. Was there any purpose or object to leave, by means of those hooks, a hole at the line of the junction of the blocks?

A. It would show a mark when it is withdrawn; as we run the trowel over the joint it closes. When I buy them I call for about 25 to 30 to the inch—25th of an inch—in thickness, so they would not mar the block much.

584 Q. You do not design to make or leave holes, but rather to fill those up?

A. When the work is finished it shows no place; it is closed up by pressing the work together.

Q. What is the difference between the work done by you in the way you have described and the work done under the Schillinger patent as you understand it?

Objected to as improper and incompetent.

A. As I superintended under that patent one season for several months, I had a chance to know there is quite a difference.

Q. When was that?

A. In the year 1873—from June until some time in October.

Q. By whom were you directly engaged?

A. J. D. Decrest was their manager, and I took his place. I was

not employed by either of the partners of the Schillinger Company, but took his place.

Q. Did you do much work there that season for them?

A. I looked after the work, supplying the gangs with material, contracting for work, measuring work, keeping the accounts at the office.

Q. Did you see how it was done?

A. Yes, sir.

Q. So are you or are you not familiar with the process of the work under that patent?

A. I am familiar with it; yes, sir.

Q. Just state, if you please, how that was done.

585 A. They used zigzag frames—quite a similar one in laying this ornamental work except they were square edges, not beveled—and after completing one row of blocks or sections they immediately put in next to the work finished a strip of tar paper projecting downward to somewhere near the depth of the work and above the work an inch or more.

Q. Thus separating the blocks from each other?

A. Yes, sir.

Recess to 2 p. m.

2 P. M.

Examination of Mr. HURLBURT resumed by Mr. SMITH:

Q. Returning to the question of the exhibits presented here, what does this piece of wood marked D represent?

A. What we call a straight edge, for striking off the surface of the block—leveling it.

Q. What is the notch at the end for?

A. That corresponds with the thickness; that we call the parting strip, running on top of the work.

Q. And allows the end of the straight edge to pass over the parting strip without raising the upper part of the straight edge above the level of the blocks?

A. Yes, sir; that is designed to do that.

Q. In passing the straight edge over the fresh material with the notch moving over the parting strip what does the other end of the straight edge rest upon?

A. Upon the forming frame or scantling.

586 Q. Did you become, in the time that you worked for Schillinger Company, familiar with their process and their claims?

A. Yes, sir.

Q. Were you at work with or under Jenkins and Selby?

A. I was engaged by that company through J. D. Decreet. Jenkins and Selby were what constituted the company.

Q. Do you remember their calling it "Schillinger Artificial Stone Company," operating here in Chicago?

A. Yes, sir.

Q. What other difference, if any, was there between their processes and those you now use?

A. The paper was left in the joint, and after the work became hard it was necessary to send a workman to trim the paper down to the level of the surface of the walk.

Q. What were the claims then made by the company?

Objected to as incompetent and immaterial.

Q. What rights and processes do they claim as owned by themselves or secured to them by patent?

Same objection.

A. They claim the paper strip between the blocks for separating the blocks—claimed it made a water-tight joint, and that a block laid in that manner having square edges could be raised and
587 lowered without injury to the adjoining blocks in case one wanted to be renewed.

Q. Do you know whether that object of taking out a single block from the pavement was kept in view by that company and its agents in the process of manufacturing the pavements?

A. That was the aim; I do not think it was followed closely. It proved it was difficult to do without injury; it proved difficult to take out the block without injury to the adjoining blocks.

Q. Do you know whether Jenkins and Selby laid pavement also upon other plans and by other processes than those patented by Schillinger?

A. Yes, sir.

Objected to as irrelevant and immaterial.

Q. What was the difference between the process they used when operating under the patent and that used by them when operating without reference to the patent—independently?

A. They put down floor-work in different places in the same manner we do it, except they left the edge square when putting down work in one color.

Q. Do you know whether they accounted to Schillinger and paid royalty upon that work which they did without the use of tar paper or other material between the blocks?

Objected to as improper, incompetent, and immaterial and irrelevant.

A. Yes, sir; I believe I know they did not pay royalty on work made plain. I was instructed to keep separate measurement of work where they didn't put anything in the joints. Decreet told me they were not expected to pay royalty on such.

588 Q. Were there any other persons representing that company or doing work under the Schillinger patent in Chicago at that time?

A. Not that I know of.

Q. Do you know whether they were agents of the plaintiff Schillinger at that time?

A. So far as I know they were claiming to be using the name and brand.

Q. Did they openly and notoriously use the name?
A. Yes, sir; they used the name.
Q. Was one of those two persons Dr. J. B. Selby, of Milwaukee?
A. Yes, sir.
Q. Do you know the name of Mr. Jenkins?
A. I believe it is Charles E. Jenkins.
Q. Do you know whether he formerly resided in Milwaukee?
A. I don't, no further than he was said to be from Milwaukee before I knew him.
Q. Have you ever employed the tar paper or other material to put between blocks except as you were authorized to do so directly by the plaintiff in this suit?
A. No, sir.
Q. Have you ever used the tar paper or other material placed between the blocks since leaving their employment and the employment of Jenkins and Selby?
A. In superintending work for Perkins and Stevenson for two or three months at one time, a year after I was connected with
589 the Schillinger Company, they used or brought on the ground for us to use a steel strip to insert in the place of paper, removing it when the blocks were finished and closing up the joint after taking it out.
Q. Since that time how has it been?
A. I never used anything in the joint.
Q. What year did you last use anything between the blocks?
A. In the year 1874, for Perkins and Stevenson.
Q. Are you now at work for yourself or for some company or individual?
A. We have been incorporated recently.
Q. You are at work for a corporation in which you are interested?
A. Yes, sir.
Q. The name is what?
A. Portland Cement Paving Company, Chicago.
Q. Did the use of the Schillinger process leave tight joints between the blocks or open joints?
A. They were closed up against the tar paper.
Q. What object did you keep in view as to joints in laying block or other pavement?
A. To manufacture or lay one block close as may be to the other, as close as possible.
Q. To leave joints or leave no joints?
A. To leave no openings.
Q. Was that your plan and intention in the laying of the work you have referred to in Milwaukee?
A. Yes, sir; it was.

590 Cross-examined:

Q. Are you the J. B. Hurlburt, defendant in the suit of Schillinger against J. B. Hurlburt?
A. Yes, sir.

Q. And you are defendant in the same case in which the injunction was argued before Judge Blodgett yesterday?

A. Yes, sir.

Q. And you did this work in Milwaukee for the Phillip Best Brewing Co.?

A. Yes, sir; contracted to do it.

Q. And you agreed to protect the Phillip Best Brewing Company against the charge of infringement in this case?

A. Nothing said about it.

Q. Has there anything been said since the commencement of this suit?

A. No, sir.

Q. Nothing whatever?

A. No, sir.

Q. Did you authorize the publication in a Milwaukee paper of a statement that you would defend the parties in Milwaukee for whom you should work?

A. Yes, sir.

Q. And the same witnesses are produced here whose affidavits were used in the injunction motion yesterday?

A. Some of them; yes, sir.

Q. And the same exhibits, or some of them, are produced here that were used yesterday?

591 A. Yes, sir.

Q. How long did you say you have been engaged in this concrete pavement work? You represented the Schillinger patent in June, 1873, first, and with that company you first learned in relation to this concrete pavement work?

A. Yes, sir; I had seen it laid considerable the year before and was conversant with the manner it was laid in Chicago.

Q. But your first personal acquaintance with it dates with your commencement with the Schillinger Company?

A. Yes, sir.

Q. Subsequently you were connected with Perkins and Stevenson?

A. For a short time—not to exceed three months.

Q. Then you started in business for yourself?

A. Yes, sir; business in which I was interested.

Q. Under the name of the Portland Cement Company?

A. Yes, sir.

Q. Who composed that company besides yourself?

A. In the first place, it was to have been Phillip Wadsworth, although there was nothing printed, but being a dealer in cement he finally substituted William P. Dickinson, who was connected with their house indirectly.

Q. Was it an ordinary firm partnership?

A. That is what it resulted in. At the start it was to be incorporated, but it was not until now.

Q. Since when has it been incorporated?

592 A. The papers have been returned from Springfield recently.

Q. Who constitute the company now?

A. J. B. Hurlburt and George R. Knowlton.

Q. When were the articles of incorporation filed?

A. Some two months ago or about two months, I should judge, or six weeks.

Q. When did Dickenson's connection with the company cease?

A. I think in the month of July, 1875.

Q. From July, 1875, up to the time you sent the articles of incorporation to Springfield who was connected with the company besides yourself?

A. My brother, indirectly—that is, he had some means in it; my two brothers and myself.

Q. The business of the company was the laying of this cement work?

A. Yes, sir.

Q. And as I understand you, you laid two classes of sidewalk—pavements?

A. Different styles and colors.

Q. You laid what are termed flags, and also diamond blocks in colors?

A. Yes, sir; flags three years ago this fall.

Q. Please describe how you laid the flags.

A. The same way as the malt floor, except we kept the joints up full and sometimes compressed the line of that joint by a V-shaped strip; bore it down the 19th of an inch or so; a piece of board brought to an edge and just the edge depressed down in the work, showing a line.

593 Q. Is that pressed along the straight edge or is it of sufficient width to extend across the flag and find the place of the union of the two blocks and then sunk in the 16th part of an inch?

A. We sometimes laid a straight edge across and pricked where we wanted to lay it. In some instances we draw a line right across and run a trowel over it.

Q. That alone suffices to make a joint line?

A. Yes, sir; when it is new it would show right away it was intended to be blocked off. It has no other purpose.

Q. When the blocks separate the cracking follows that line?

A. It would if this line over the place where the scantling is removed. If it is a quarter of an inch away it will not.

Q. Do you bring it right over where the timber is withdrawn?

A. Yes, sir; where the timber is removed from.

Q. The cracking follows the line?

A. It follows where the material was parted on the fresh line. That controls the cracking, whether there is any mark on the surface or not.

Q. If there is a mark on the surface you always secure a true and accurate joint where the cracking takes place?

A. The line has nothing to do with the cracking.

Q. As a general thing you make the line directly over the separation?

A. We have done it that way and without any. I prefer not to make any.

594 Q. But I understand you to say you didn't make generally this line directly over the place where the scantling is removed?

A. Our endeavor is to make it over, but if the workmen do not get it exactly, then it shows a mark line and a shrinkage joint.

Q. Did you see the pavement made for Hill, corner of Chicago and Dearborn avenue?

A. Yes, sir.

Q. Was that pavement laid by your company?

A. Yes, sir.

Q. In that pavement the joint is marked?

A. By a line drawn across and pressed down.

Q. That line was made directly over where the joint was?

A. Yes, sir.

Q. It was as a matter of fact made so?

A. Yes, sir; as nearly as may be.

Q. Have you examined that pavement since it was laid?

A. No, sir; not particularly.

Q. When did you see it last?

A. Not since it was laid.

Q. In October?

A. Yes, sir.

Q. You laid a pavement like that in Milwaukee on the premises of Best Brewing Company?

A. No, sir; I don't know as it was like that.

Q. I mean the pavement around the fountain.

A. I think that was depressed with a V-shaped strip; that is my recollection.

Q. Was not that the way this pavement on Chicago and Dearborn avenue was made?

595 A. No, sir; there was a little cord drawn across and a trowel run over it to press it down.

Q. In the Milwaukee pavement the line was made by the V strip, then?

A. I think it may have been. I know we used it at different times.

Q. You are satisfied there was a line of some kind made there?

A. Yes, sir; I believe there was, to the best of my recollection.

Q. Who was that work for?

A. For—Capt. Pabst ordered it.

Q. For the brewing company?

A. I cannot remember whether there was a separate bill made for it or not; I think they kept the account separate; I may not have been paid separate.

Q. Were you paid by the Best Brewing Company for that work?

A. I presume I was.

Q. State your best recollection.

A. I do not remember whether there was a separate bill made or not; my best recollection is the book-keeper or secretary took the time it amounted to and kept it separate, as I remember, but in paying me I think they gave me a check for all.

Q. Of the Phillip Best Brewing Company?

A. Yes, sir.

Q. Who did you make your contract with in doing the work for Phillip Best Brewing Company?

A. Capt. Pabst.

596 Q. The same one you did this work for around the fountain?

A. Yes, sir; the proposal was accepted in the name of the Phillip Best Brewing Company.

Q. But the negotiations were had with Pabst?

A. Yes, sir; he contracted for that around the fountain afterwards at a different price.

Q. Take that fountain and commence from the beginning and describe how that pavement was laid.

Objected to as irrelevant.

A. My recollection is Pabst had his carpenter place some timber around it the width of the walk from the curb to the fountain—straight pieces running parallel with the straight sides of the fountain, the space may be three or four feet wide—and we put across scantlings as we filled the work along, four feet or more, and kept marks where these scantlings were removed from. We proceeded to move the timber back and fill until completed. Then this V-shaped marker was pressed into the line where the timbers were removed from to the width of a 32d or 16th of an inch for about an eighth of an inch to a 16th of an inch deep; pressed the material down instead of separating it.

Q. The lower course of that walk was composed of sand, gravel, and cement?

A. Yes, sir.

Q. Mixed about one to seven?

A. Yes, sir.

Q. One part of cement and seven parts of the other?

597 A. Something like that; it may be one to six.

Q. And that was filled in the mold and tamped down compactly?

A. Yes, sir.

Q. Then the upper course, a half an inch thick, was floated on top?

A. Yes, sir.

Q. That was composed of half cement, half sand, and water to make it plastic?

A. Yes, sir.

Q. Then it was smoothed over with a surface float or straight edge?

A. Yes, sir.

Q. And when partly set the long scantling was removed to the size of the next block?

A. Yes, sir.

Q. And that was made in the same way?

A. Yes, sir.

Q. Now, your spoke of a tamp or rammer?
A. Yes, sir.
Q. That was an implement by which the stuff was tamped down?
A. Yes, sir.
Q. Suppose that this V block here, marked B, is the edge of the completed block?
A. Yes, sir.
Q. The rammer is compacted all through the mold?
A. Yes, sir.
Q. And along this line?
A. Yes, sir.
Q. Of the completed block?
598 A. Yes, sir.
Q. Until it is leveled up to the same thickness of the course material in the completed block?
A. Yes, sir.
Q. Then the fine material is floated in and smoothed down the same way when this tuck-creaser or bevel, you say, is run across the line?
A. No, sir.
Q. Depressed into where the scantling was removed from?
A. Yes, sir.
Q. How thick do you say the upper course was?
A. It may have been an inch. That is finished against the timber before it was removed.
Q. The lower course of this material is the coarse stuff you have described, with a small quantity of cement in it?
A. Yes, sir.
Q. Have you ever seen any of that removed from the sidewalk?
A. I have seen it; not there.
Q. In another place?
A. Yes, sir.
Q. In what condition was that lower strata of material?

Objected to as immaterial.

A. It was set together very strong usually.
Q. But experience shows that along the joint here, or where the two blocks come together, that that is the weakest place in the block anywhere; if any cracking takes place it will usually come in the joint instead of the middle of the block?
599 A. It spreads there from the contraction.
Q. And the separation extends up through the fine upper course?
A. The upper course is parted in the same way. One sets before the other is the reason it does not adhere.
Q. You say there was a footwalk made in front of the office of the Best Brewing Company?
A. Yes, sir.
Q. And that was in what you term diamond work, ornamental work?
A. Yes, sir.

Q. Have you examined that footwalk since it was laid?

A. I have passed over it a number of times.

Q. Do you know the condition of it at present or when you saw it last?

A. Yes, sir; pretty well.

Q. Were the blocks separated at the top there?

A. Yes, sir; they show the line.

Q. Joint line?

A. Yes, sir.

Q. And I understand you to testify, on your direct examination, that only in one case out of three hundred did they separate?

A. It is very rare they don't separate—only when laid at the same moment.

Q. It is not the intention when laying these diamond blocks to lay them at the same moment?

A. No, sir; it is impossible.

Q. As a matter of fact, the success of these walks is due in a great measure to the separation of the blocks?

600 A. It may be termed so.

Q. Has not experience in the use of cement walks demonstrated that clearly as a fact?

A. Yes, sir. If you wanted to lay a walk a mile and a half long you would not expect to keep it together without a break.

Q. You would not want to lay one a quarter of a mile long, either?

A. No, sir.

Q. If a slight tendency only is given in the formation of these blocks to control the separation on the line where the blocks are united or weakened, such tendency will usually control the cracking, will it not?

A. I don't know as I understand the question. No; it won't control it at all. No mark or cutting to the depth of half an inch, it will come exactly on the line where the timber is used, the lower course being made of gravel, and that being parted on a straight line, and not interlocked as in the main body of the work, the contraction is sure to come on that line. If you make this little mark on the surface of a quarter of an inch on the one side of that line it will show two joints. I was not speaking of making a mark directly over where the timber was removed. If we make the mark a little to one side the mark will have nothing to do with or control the cracking; there will be two apparent joints, or two marks, or two lines; one would be a separation and the other would not. The mark would be no separation.

Q. What do you make the mark for?

601 A. To show for the time being it was an imitation of stone; it is of no benefit, and is not so good. We made no mark in about nine-tenths of all the work; it has been colored work, and we never have made any mark on that work. Workmen many times like to have the work show the imitation of flag, and they make that mark and make it over the line of where they move the timber back. It is not a necessity.

Q. Then I understand you "A" is one of the regular parting strips which you use in practice?

A. Yes, sir. We give it the name of parting strips—parting colors; it is used on the surface of the block.

Q. Your foreman, Miller, testifies that on some of your parting strips the projecting hooks projected to the extent of an inch. Is that so?

A. I don't know what he testified to.

Q. As a matter of fact, did you use strips?

A. That projected down lower than that?

Q. Yes, sir.

A. I have ordered those pieces, I think, every time, and used several hundred of them. I have had those pieces, as I remember, an inch or an inch and a quarter square. The projection was just as much this way as that before it was bent to drive in there; consequently that is about a full-length piece. It projects down, as we calculate, about three-eighths below the rubber, more or less—three-eighths of an inch.

Q. In all of the work which you do or did in Milwaukee for
602 the Best Brewing Co. were the same courses of material used—that is, the lower course with the fine upper course tamped down?

A. Yes, sir.

Q. Have you examined any of this brewery work since it was done?

A. Yes, sir.

Q. And do you find that these blocks have separated?

A. I find there is an opening more particularly where we left off, for each day's work, where we left the edge square. We laid no blocks in the brewery.

Q. Sections?

A. Yes, sir.

Q. Were there also openings on the ends of the sections too?

A. At the wall.

Q. I understand these sections were laid right across the room?

A. Yes, sir.

Q. Were there some end openings too?

A. They laid from one side of the house to the other. There were no cross-pieces put across during the process of laying it.

Q. Are your certain?

A. Yes, sir; they would only be in the way. It is possible where they left off a strip at night they might have squared it up.

Q. Were you present all the time that work was going on?

A. No, sir.

Q. Is your recollection entirely clear?

603 A. Yes, sir; for I direct it in every case—all the work I have done.

Q. Were your directions followed out literally?

A. Yes, sir.

Q. Then it is a mistake when he testifies about there being cross-joints?

Objected to because it assumes an answer that has not been given.

A. He was mistaken, unless, as I say, it might occur once in three days or once a week they didn't finish. Then it would show a straight line there now where they left off at night.

Q. How wide was that room?

A. 70 feet, more or less.

Q. How long?

A. The house was over 130 feet, I think.

Q. Do you remember how many feet of pavement you were paid for in that house?

A. I don't remember exactly what the house measured of itself; altogether there was seventy thousand feet we done, more or less.

Q. Can you testify positively that the tamp or rammers were used in the malt-house work?

A. Yes, sir; always in the lower strata.

Q. In this Phillip Best job?

A. Yes, sir; we never put down any work without using it.

Q. These little pieces of rubber which are shown here are intended to represent on a small scale this parting strip?

A. Yes, sir.

Q. The only difference is these pieces of rubber, with this exception, has not any hooks on it?

604 A. No, sir.

Q. In this little model here the dark-colored blocks were marked over with lamp-black after being cast here?

A. No, sir; I think it was mixed in the material.

Q. All the way through?

A. No, sir; the top course. I didn't see it made.

Q. Is this made in more than one course?

A. Each color was made by itself. It shows lines, as all the work does when first finished.

Q. Are you certain of that?

A. Yes, sir.

Q. And does your work when finished look as irregular as this along the line?

A. No, sir; not in laying large work. Small parting strips are easily moved in striking off.

Q. Who made this model?

A. Mr. Miller, I suppose. I ordered him to make one.

Q. Have you ever seen diamond blocks of your manufacture taken up?

A. Yes, sir.

Q. Do they come up in solid block or in separate blocks?

A. Separate blocks usually.

Q. And they were separated in colors also, were they not—that is, the white color would come up as a separate block?

A. Yes, sir.

Q. And the black?

A. Yes, sir.

Q. Do I understand you the coloring is only in the top course?

605 A. That is all.

Q. That is caused by mixing a little lamp-black with the fine material?

A. Yes, sir.

Q. When you mark off with a trowel, as stated before, what kind of a trowel do you use—an ordinary brick trowel? You spoke some time ago about laying a string across and then running a trowel across to depress it along in the line. What kind of a trowel was that?

A. It may be a brick trowel or a smoothing trowel. We used it flat on the line to press the string.

Q. Did you ever use a brick trowel?

A. Yes, sir.

Q. What is that used for?

A. Sometimes plastering coarse material, leveling it around, getting it ready to tamp. It does not cut much figure in laying cement paving.

Q. Does it cut any at all?

A. They can get along without using it, and they have many times when they forget to bring it.

Q. Did they use a brick trowel on the Phillip Best malt-house floors? Can you testify they did not use it for getting a joint in the malt-house floors?

A. I would discharge any man for doing it. I can testify that I never saw it done.

Q. Can you testify it never was done?

A. No, sir; I never saw it done. It would be an injury to the work. The object is to make it without any lines or joints whatever in a malt floor and any floor.

606 Q. I understand you to say that Portland cement sets, or commences to set, as quick as you put water in it?

A. Yes, sir.

Q. For that reason you have to work it very quick?

A. We usually get it in place and finish it as soon as may be.

Q. When you get it in place it commences to set while you are striking off, don't it?

A. Yes, sir; commences to stiffen.

Q. And as soon as you get it struck off and remove your material from it, it commences to harden from then on?

A. Yes, sir; of course it don't get very hard in one day or in two days—not hard enough to bear the weight of a person at all. It gets hard enough to walk on in three days—sometimes in two days.

Q. Is this model A a full-sized parting strip, such as you use on actual work?

A. Yes, sir—that is, full size of that size block. That is one of the very shortest, probably the smallest size we ever laid in frames.

Q. This — champered off—a rabbet formed in it for the reception of this rubber strip?

A. Yes, sir.

Q. And when this is placed on the work it comes down snugly on the edge and forms a bearing?

A. Yes, sir.

Q. And makes a straight line on the edge?

A. Corresponds with the straight line already made.

607 Q. Out of the block already completed?

A. Yes, sir; the work is all the time below this; this has nothing to do with straightening the work.

Q. That is covered entirely by the mold?

A. Yes, sir; the work itself.

Q. In other words, the straight edge of the work already formed is covered by the straight edge of the mold?

A. Yes, sir; to bring the work to the right hight, and the bearing on the parting strip more essentially.

Q. And this notch here in the straight edge is cut at sufficient depth to allow the notch to take in the thickness of the parting strip and become perfectly flush with the frame and the work already formed?

A. Yes, sir; the straight part should rest on the line of the work; different from floor-work. We use no notch.

Q. The other exhibit would probably represent what you use there?

A. Yes, sir.

Q. And on floor-work that takes on the work, and on the scantling in this one?

A. Yes, sir; we pay no attention to any joint. The workmen strike right across the two sections in finishing it.

Q. In your diamond blocks, when you remove the parting strips, you press in some of the same material of the top course in the little aperture made by the hooks?

A. We don't press down.

608 Q. Do you press together?

A. In bearing upon the work it closes.

Q. Closes sideways?

A. Yes, sir.

Q. What is your opinion in regard to that sidewise closing? Does the material adhere?

A. It would adhere to the newer block and not to the other.

Q. It would separate from the other?

A. The older block having commenced to set, they don't act together.

Q. Then, practically, so far as the points go, for an inch and one-fourth or one-half in width at each end of the block, that extent the blocks are separated at the outside?

A. No more separated than they are clear down through. It would be just the same; the line diverges there; it would take the place of the timber.

Q. As a matter of fact, is the upper course united all the way across and including the place occupied by these points?

A. They touch; the two blocks touch all the way across.

Q. But this space comes between all the same?

A. That space, the line diverges there. It would help to bind it from cracking if there was any difference.

Q. At that point where it diverges there is a separation effected by a sharp instrument, and that is the hook?

A. That don't separate it any more than the stone itself
609 separates it; the entire length being iron, it would be the same as the material itself to separate it.

Q. Then there would be no more separation there in that case than there would be if a piece of tin like this was put in and then removed?

A. If the other was immediately shoved up.

Q. There would be no separation?

A. No.

Q. As a matter of fact, there would be no more than in the method you employed—than there was in the method where the tin or steel parting strips were used, provided that the material was immediately shoved up against the completed block?

Objected to.

A. I don't know; really it goes down a quarter or three-eighths of an inch. It would be different from putting a strip the whole width of the block.

Q. I do not refer to putting a strip down the whole width of the block. The projection on this piece of tin or flange is about the same height or depth as on your parting strip?

A. Yes, sir.

Q. Supposing that this parting strip of tin is placed on this wise and the new block finished up against it, then this is removed, and the joint smoothed up as you would do it with your parting strip, what would be the difference then?

A. Nothing material. If it is put up there when it is in a liquid and plastic state, it bearing against the iron in one case and the next second bearing against the stone, it cuts no figure in the pro-
610 duction of the joint. The joint would come there anyway if there was square face to the stone.

Q. So far as practical results are concerned there would be no substantial difference between the two methods?

A. I say neither would control the cracking.

Q. That does not answer my question. Would there be, so far as practical results are concerned, any substantial difference between the two methods?

A. No difference, so far as the size of the one corresponds to the other. I don't know as I can figure out to a hair.

Q. What is your judgment on it?

Objected to as immaterial.

A. In the one case one sets into the stone; one sets on the line. One would have a tendency to interlock and strengthen; the other would be on a straight line. One would overlap.

Q. Will you explain to the court just to what extent your parting strip—the projecting strip—would set into the stone?

A. About the thickness of it, 25th part of an inch or thereabouts.

Q. Setting your parting strip now on the corner of your model

and run a straight edge along the same, will you please look at it and see how much it varies from getting on the edge?

A. It may be a 20th to a 25th of an inch.

Q. It may be a 32d of an inch?

A. I think the steels are about 25 when they are new.

Q. They are a trifle thinner than an ordinary knife blade?

611 A. Yes, sir; an ordinary fruit-knife, for instance.

Q. You say you have examined the footwalk in front of the Phillip Best Brewing Company's office and find that the blocks have separated at the joints?

A. I did not know that I had answered that question. I have been over it. I was over it shortly after it was done. I don't know whether it is separated or not.

Q. Are you now testifying that you do not know whether it is separated or not?

A. I thought you meant the fountain. I have noticed that it separates, as it usually does. It can be taken up in blocks if we can get into one edge.

Q. By commencing at the edge the separate blocks can be removed?

A. Yes, sir; I have in many instances, and relaid them.

Q. Then when you want to take out a block to replace and repair it you can do it?

A. No, sir; not out of the center.

Q. If you begin at the sides you can take it away and then replace it by putting in a new one?

A. Yes, sir; or you could break out a block and put in a new one.

Q. Without injuring any of the others?

A. If you begin in the center and chisel it out.

Q. I understand you that you have laid work under the Schillinger patent with tar paper under the joints?

612 A. Superintended the work. I used to see it laid every day for several months.

Q. Suppose this model here was filled out with blocks laid under the Schillinger patent, with tar paper between them, and they were freshly laid—you wanted to remove the middle block, how would you do it?

A. I don't think you could do it while it was fresh. The design might be to lay it so it could be done. It might not have been laid accurately enough so it could be done. In that case you would have to chisel out the center block if you want to renew it. They contend they can do it, but I have never seen it done.

CHARLES ROW, called by defendant, being sworn, testified:

I live in Chicago and have lived here for the last five or six months. Before that I lived in Baltimore and Washington; 14 or 15 years in Baltimore, and as much as that in Washington.

Q. Have you lived in Europe—Germany?

A. Yes, sir.

Q. Where?

A. Bavaria.

Q. When did you come from Bavaria?
A. In 1850.
Q. How old were you then?
A. 22 years of age.
Q. Are you familiar with the business of laying cement pavement?
613 A. Yes, sir; they do that work there; I served my apprenticeship at that in Bavaria.

Objected to as improper and incompetent, and all the testimony of this witness is objected to for want of notice in the answer.

Q. What can you tell me about such work done in Bavaria?
A. We have done that work in different places, in Nuremberg and Munich, Bavaria. The place I could not tell you exactly, as at that time I was not the boss; I must go where he sent me.
Q. Did you work in both of those towns?
A. Yes, sir.
Q. Did you do much of this work, and how much?
A. Yes, sir; laying pavement and plaster walls just the same as here, pretty near; the building must be all plastered. It is done and laid off in blocks on the pavement as well as in the house—on the floors in the houses.
Q. How were the cement floors laid at that time and in those two places in the house?
A. One in different color, and another time we laid them in large flags; just the same outside on the pavement.
Q. The materials cement, sand, and gravel?
A. Sand and gravel. Sometimes we mixed them four to one; sometimes five to one, according to the process; another time we take a little more cement on top—always half and half.
614 Q. What kind of frames did you use where you laid them in mass and not in square blocks?
A. We had scantling outside according to the width we wanted; then we got a piece of scantling and moved it from one place to the other, the way we were going.
Q. Are you at work at that sort of thing now in Chicago?
A. Yes, sir; here in Chicago, and this last five or six years most in Washington laying tiling. Here I done work for myself.
Q. Have you seen work done here by Miller and Hurlburt, the witnesses?
A. No, sir. Probably I see it as I walked over it. I didn't notice.
Q. After you ever laid one course or section of a cement floor, in those cases where you did not use the diamond blocks, what did you do next?
A. (Witness illustrates.) We have our scantling according to the width; we lay a strip outside, a piece of scantling four or five inches wide, then we strike off with a straight edge.
Q. You strike off the floor you have just been laying with a straight edge?
A. Yes, sir.
Q. Do you make it level?

A. Yes, sir; for instance, I want to make this piece, I strike this off and finish this; then I move this from there, this way.

Q. You move the scantling away?

A. Yes, sir; away from there.

615 Q. Do you move it away so it lies parallel to the scantling as it did before?

A. Yes, sir.

Q. And the width of the section from where it was before?

A. Yes, sir.

Q. That leaves a vacant place?

A. Yes, sir.

Q. What do you do then?

A. Fill it right in again, and take my straight edge and rest the straight edge on the block of stone and strike it right off and finish this.

Q. You lay your straight edge one edge on the finished section and the other on the scantling?

A. On the scantling, and pass it over the material you have just put in and level it off that way.

Q. Do you press the new material just put in against the old section?

A. Against the old section; yes, sir.

Q. Do you leave the edge of the other section standing up or break it down?

A. I fill it right plumb up; then I take the line and line it off, so. I mark it off here.

Q. Mark it off with a line just where the scantling was before?

A. Yes, sir.

Q. So as to make a line on the top, between the new and the old section?

A. Yes, sir.

Q. What kind of a line?

A. Any kind; sometimes we make a line with a trowel or take a piece of string.

616 Q. Draw it across?

A. Draw it across.

Q. How deep a line do you make?

A. About an eighth of an inch in depth; and that cracks right off over that line; then there is a joint there anyhow.

Q. That is the way you did it in Germany?

A. Yes, sir; and that is the way we do here.

Q. Then your process in Germany was the same that you employ here?

A. The very same thing.

Q. What about the work you have done in this country since you came here?

A. In Washington the cement-work; over in Baltimore I made the malt floors.

Q. What time did you work in Baltimore?

A. I made a malt floor in Baltimore nearly 25 years ago; probably a little longer than 25 years ago.

Q. Have you done any other work in Baltimore?
A. Not this cement-work, except a malt floor. This other work I done in Washington.
Q. What work did you do in Washington?
A. Tiling work.
Q. And when did you do that in Washington?
A. About ten or eleven years ago.
Q. Did you do any other work of this kind in the United States?
A. I worked in Philadelphia; last summer I was in Philadelphia.
Q. The same sort of work?
617 A. The same sort of work.
Q. Did you do any work in the United States of this kind before ten years ago?
A. No; not before ten years ago, except this malt floor; not any tiling work, except ten or twelve years ago; doing some work in Washington, and worked for Schillinger in Washington too.
Q. Schillinger, this complainant here?
A. Yes, sir; this very same man.
Q. When did you work for Schillinger in Washington?
A. I could not tell; when he got the job around the Capitol, in Washington.
Q. What doing?
A. Laying down this fancy work; the work cut out.
Q. Cement pavement?
A. Yes, sir.
Q. For the Government?
A. Yes, sir.
Q. On the Capitol grounds, at Washington?
A. Yes, sir.
Q. Tell me about when it was.
A. About six or seven years ago; it is a long time ago.
Q. That was not in diamond-shaped blocks—in fancy blocks, was it?
A. Yes, sir.
Q. Do you know whether that work was done according to the Schillinger patent or not?
A. No, sir; it was not.
618 Q. When you did this work in Baltimore and Washington and Germany did you use any kind of strips to put down between different blocks or sections of the pavement?
A. Yes, sir. (Shows counsel strip.) That is a strip my father had in the old country. I brought them here with me; they are pretty old strips.
Q. These two pieces of tin or other metal are the strips you used in Germany; where did you use these two pieces of metal?
A. In Germany, and used them here.
Q. Your father used them before you?
A. Yes, sir.
Q. Was he in the same business?
A. He was in the same business; he was a mason.
Q. How old are these two pieces?

A. I could not tell you.
Q. How old do you think them to be?
A. Forty or fifty years old.
Q. You have seen them how long?
A. Ever since I worked; as long as I worked, and when I came to this part of the country I brought them along.
Q. Have you seen them 35 years?
A. Longer. My father gave them to me when I was an apprentice and told me to take them along and to put them between the the joints. He showed me first; then he said I must do it.
Q. These are pieces of tin 10 to 14 inches long?
A. Different sizes.
Q. About how wide?
A. About two inches.
619 Q. Bent over on the edge about a quarter of an inch?
A. A little better than a quarter of an inch.
Q. And they are used how?
A. Just the same as these. For instance, this block is finished; now you go to work and lay a block outside; then we lay the tins around.
Q. These are laid around the finished block?
A. Yes, sir.
Q. Do you lay the broad side, which is about two inches wide, flat down on the finished back?
A. All around—yes, sir; we put our color in, any kind of color, and when the tiling is finished we take it out and press the joint against the other stone, which shuts the joint up.
Q. What is the use of those tins?
A. They are used to keep that stone what is finished clean from the color, so no other color come on that stone.
Q. Is it not, then, so as to keep the stones apart?
A. Yes, sir; the stones, too.
Q. Did you use such tins as those or did you use these tins in Baltimore, Washington, or Philadelphia when you were making floors all of one color?
A. No.
Q. When you were making floors all of one color did you put anything between the joints?
A. No, sir.
Q. When you made your malt-house floor in Baltimore and when you laid your floors in Germany, did you try to keep those
620 sections or blocks separate or did you try to have them all one solid mass?
A. All one solid mass, white floor especially. They have no joints except where we close in the evening and go off; then we leave a scantling, go and work on it the next day, and press on it if that joint be open; if it don't open right away it will in a couple of months.
Q. Where you finish your work in the evening there always would be a joint?
A. Always would be a joint.

Q. But you could do your work along during the day, so there would not be much of a joint?

A. Yes, sir.

Q. Have you seen work done under the Schillinger patent with tar paper or other material put in between the blocks?

A. I seen it and done it myself for Schillinger.

Q. Did Schillinger, the complainant, show you how to do that kind of work?

A. Yes, sir; he told me you must not leave the tar paper out, except in the Capitol at Washington we didn't use tar paper.

Q. When you speak of the work on the Capitol you mean on the grounds of the Capitol?

A. Yes, sir; outside. We did not use any tar paper there.

Q. That was laid in blocks of fancy shapes?

A. Yes, sir.

Q. Did Schillinger tell you what the tar paper was for that he wanted you to use?

621 A. Yes, sir; he says, "You must use when you work—I don't care where I send you—you have to use my patent; that is my patent."

Q. When he said "my patent" what did he show you?

A. The paper; he always carried the paper along.

Q. How long did you use that tar paper as he directed?

A. Nearly all the time, so long as I worked for him.

Q. About how long?

A. I worked one season in tar paper; the next season we worked on the Capitol grounds, and didn't use any there.

Q. Did you work for him more than two seasons?

A. No, sir; only two seasons.

Q. Did Schillinger tell you at that time what the good of the tar paper was?

A. He says to keep the blocks separate.

Q. About what year was that, can you tell me, that you used the tar paper?

A. No, sir; I could not tell you what year it was.

Q. Was it four or six years ago?

A. Yes; eight or nine years ago.

Q. Do you know how long it was before you did that work that he got that patent?

A. No; I didn't know anything about the patent at that time; anyhow, I met him and told him "that is an old thing, this cement work that has come out again," and then I heard Schillinger had a patent out.

622 Q. When you laid your block pavements in Germany did you put any tar paper or anything of that kind between the blocks?

A. No, sir.

Q. When you worked for Schillinger did you pull out the tar paper or leave it in?

A. Left it in and cut it off.

Q. Do you know whether Mr. Hurlburt, in the work he does in

diamond blocks, puts anything or leaves anything in between the blocks?

A. Not as I know of; I never seen his work done and never worked for him.

Q. Can you tell me the name of the man you used to work for in Bavaria?

A. The boss was Schaptapf; that was in Nuremberg, and then in Munich I worked for one by the name of Fox. I guess they are long dead.

Q. How many years did you work in Germany?

A. I commenced 13 years, and then I worked until I was 21 or two years old—four or five years' apprenticeship—and then I got to travel around and go in big cities and see work done there.

Q. Work for yourself?

A. No.

Q. As journeyman for others?

A. Yes, sir.

Q. Where did you work first?

A. I worked in Nuremberg first.

Q. How long a time?

A. 1844 to 1846.

Q. And in Munich?

A. I went away from home in 1846, and in 1850 came to this part of the country.

623 Q. What years did you work in Munich?

A. That was the first year I went away from home.

Q. Do you know of other work being done in Munich or Nuremberg and other parts of Bavaria of this same kind?

A. Yes, sir; plenty of work; in every city or little village I see that work done.

Q. Did you see that work being done and cement floors being laid?

A. Yes, sir; I saw the men work on it, and traveled over where the work was done.

Q. It was always done in sections and with the use of scantling or timbers or frames for putting the material in place?

A. Yes, sir.

Pl'ff's counsel here gives notice that on the hearing of this case he will move to have the testimony of the witness expunged as to the use in Germany, on the ground that the same is incompetent and on the ground that, in regard to the testimony in regard to the work in Washington and Baltimore, no notice has been given or foundation laid for such testimony; that the other testimony of the witness is irrelevant.

(Signature waived.)

KLAUS MILLER, called by plaintiff, being sworn, testified:

I am 33 years old in September; I live in Chicago; I came here the fall of the big fire—1871.

624 Q. When did you come from Germany?

A. I came in 1869.

Q. What is your work here?

A. I am driving express now, but I have laid brick and laid floors and sidewalks, and so on.

Q. You have been engaged, then, in this work of laying cement sidewalks and floors?

A. Yes, sir.

Q. How long?

A. Different years. I worked for Jenkins and Decreet; then for Hurlburt. I worked for Hurlburt I can't tell how many years—five or six; my brother next.

Q. When did you stop working for Hurlburt?

A. It was last fall two years ago, I believe it was, when we came back from Milwaukee.

Q. You did some work in Milwaukee?

A. Yes, sir; I worked there.

Q. How long were you there?

A. I lived there five months with my family; I moved there.

Q. Were you working all that time on the work of the Phillip Best Brewing Company?

A. No, sir; we worked there two and a half months, I guess.

Q. What work did you help in down there?

A. I done the finishing most of the time.

Q. What work?

A. I finished the top work.

Q. On what jobs?

A. On the malt-house floor.

Q. Was this all in one building?

625 A. Yes, sir; it was all in one building; second floor, I guess.

Q. Did you have anything to do with the sidewalk work in front of their office?

A. No, sir; I was not there at that time. I had some other work. My brother did that. I done work on that piece.

Q. Who hired you at that time?

A. Mr. Hurlburt.

Q. How was this work done on the malt floors?

A. We put down scantling about four feet wide, as far as a man can reach.

Q. You don't mean the scantling was four feet wide?

A. No, sir; the spot we were working at.

Q. You started at the end or the side of the building?

A. Right along the side.

Q. And you laid your scantling about four feet from the wall?

A. Four feet apart all the time.

Q. Then what?

A. Then when we had one row done we moved the scantling back. Of course we had to knock the edge down to make the floor tight. We knocked it down with a shovel or trowel; knocked the edges down so the others got onto it.

Q. After you had knocked it down was the edge smooth or rough?

A. Rough. That is what we wanted—for the other part to stick onto it.

Q. Did you want to leave a joint or leave no joint.

626 A. We always wanted it as tight as we can get it, so it don't leak.

Q. After you had beveled the edge off what did you do next?

A. Put the gravel in and rammed it down, and we had it rammed down, put the fine stuff on top of it, and took a straight edge and leveled it off the same hight as the others.

Q. You took pains to level it off with the straight edge?

A. Yes, sir.

Q. Did you put any pieces of tin or paper or other materials between the one section you were making and the other section you had finished?

A. No, sir.

Q. When you had your work done in a room were there any joints between the sections?

A. After we got through they say it cracked in some places. The building settles a little maybe; then they crack. Of course the floor commences to leak then, and they don't want it.

Q. You try to make it so it won't leak?

A. Yes, sir.

Q. Did you ever see work done under the Schillinger patent?

A. Yes, sir. I worked on that myself for Jenkins and Decreet—Jenkins and Selby.

Q. What did Jenkins and Selby do about putting anything in between the blocks?

A. You mean in making the sidewalk?

Q. Yes, sir.

A. They put tar paper in.

627 Q. About when was that?

A. That was the next morning after the fire here.

Q. How long did you work for them?

A. I guess that summer and the next summer—for about two years.

Q. Have you ever made sidewalks for Hurlburt?

A. Yes, sir; I did.

Q. Do you know whether he puts tar paper or anything else between the blocks of his sidewalk?

A. He never did.

Q. Do you know whether tar paper or any other material was put in between the blocks of the sidewalk on Chestnut street in front of Best and Company's office, in Milwaukee?

A. I saw it after it was done, but I didn't see no paper. I don't believe he had any paper there.

Q. Did you ever see or know Hurlburt to use anything of that kind?

A. No; I never seen it.

Q. Do you know, from having done that kind of work there for Hurlburt, how the block sidewalk was laid in Milwaukee?

A. I don't know who you mean.

Q. Have you worked for Hurlburt in laying these diamond block sidewalks?

A. In Milwaukee?

Q. No, sir; anywhere.

A. Yes, sir.

Q. Do you know how he does it?

A. Yes, sir.

628 Q. Do you know, from having done such work for him and having seen that sidewalk in Milwaukee, how the Milwaukee sidewalk was made?

A. I think it was made the same way that Hurlburt made it here.

Q. How did Hurlburt make those walks here?

A. He put on those square frames the same as you have here, zigzag frames. When we had one row done put the strips on.

Q. What they call parting strips?

A. Yes; we call them strips and lay them on to keep one color from the other, so as not to run over.

Q. You lay those on the finished block?

A. Yes, sir.

Q. Do you lay the rubber side down or up?

A. This side down; them hooks is for catching on.

Q. That edge of the parting strip laid over the edge of the finished blocks?

A. Yes, sir.

Q. After the new block was set in there did you leave the parting strips or take them out?

A. We took them out and beveled it down with a trowel to make it even.

Q. What did you press down with a trowel—the new block just made?

A. No; both; the old one to make them smooth; the strips made a mark. We tried to make that smooth and even again; that is all we done.

Q. I see this model of a straight edge, D, has a notch at one end?

A. Yes, sir.

629 Q. Where does that go?

A. Right along even with the straight edge; on top of the straight edge; fit so that the bottom of the straight edge would be level over the blocks.

Q. You see this strip marked "A?"

A. Yes, sir.

Q. Is that the kind of strip you used to use?

A. Yes, sir.

Q. Having a little piece of iron here to hold it in place like this?

A. Yes, sir.

Q. Did you at any time in making those diamond blocks or in doing any of the other work use any tins or pieces of metal like the one I have in my hand here?

A. No, sir.

Q. Not to put anywhere in between the blocks?

A. No, sir.
Q. What was the shape of the sides of those diamond blocks?
A. That was different; three and one-half or four feet.
Q. I mean what was the shape of the sides of them?
A. We had different. We had the right and left frames. We had some frames turned to the right and some to the left.
Q. What would you call this frame B?
A. I don't know. I didn't lay no frames. I only saw it done.
Q. You say some went to the right and some to the left. What do you mean—that the sides of the block went to the right and left?
630 A. Yes, sir; the next frame you put against here is different; the other one is just the same size as this; the frames are being changed over all the time.
Q. Are the sides of the block straight down or sloping?
A. Always were sloped that way.
Q. One side of the block laid would go under the block that was laid before?
A. Yes, sir.
Q. When you came to the opposite side of the new block how was that laid?
A. So as to go under the next block that was made; they were standing out on the bottom and these were standing out on the top, you see.
Q. After blocks were laid like this, could you get up one of those blocks without breaking it?
A. I never tried; I don't know.
Q. When laying the blocks did you endeavor to make those without joints or leave joints (the blocks in the sidewalks)?
A. No; we never made joints; we always made them close together.
Q. Made them snug up?
A. Yes, sir.
Q. Did you pound down the cement and gravel?
A. Yes, sir.
Q. Press them hard against each other?
A. Yes, sir.
Q. You did that same thing in the floors?
A. Yes, sir.
Q. About what year was this you were in Milwaukee?
631 A. Two years ago last summer, 1880, I believe.
Q. When finishing your work at night, if the floor was not done, how did you leave the edge?
A. We left it square.
Q. Did not break it down?
A. Sometimes we did, sometimes we left it square.

Cross-examined:

Q. You did not see the sidewalk of the Best Brewing Co. laid?
A. No, sir.
Q. Your brother, John Miller, laid that?

A. He laid it; yes, sir.
Q. Did you make an affidavit recently in Mr. Hurlburt's suit?
A. How?
Q. What kind of an implement is this device that you tamped it down with?
A. Iron rammers.
Q. Something like a sledge-hammer head?
A. Yes, sir; about six inches square.
Q. When you lay a section of a floor—we will say this is a section of a floor—you fill first in the coarse material?
A. Yes, sir.
Q. Then, so you have a half an inch of the fine material on top?
A. Yes, sir.
Q. You take your rammer and ram the coarse material down?
A. Yes, sir.
632 Q. Suppose this is a block, you ram it down here close up to the block?
A. Yes, sir.
Q. And then this coarse material is made of sand, gravel, and cement?
A. Yes, sir.
Q. About one part of cement to six or seven parts of the other stuff?
A. No, sir; I didn't notice. I don't know. I never noticed that. The foreman attends to that.
Q. Who attended to that in the malt house when you did the floors?
A. My brother.
Q. All the time?
A. Yes, sir.
Q. Was he there all the time?
A. Yes, sir.
Q. The upper course is about half an inch thick in that case?
A. Yes, sir; a little more in some places.
Q. And that was smoothed off with a straight edge?
A. Yes, sir.
Q. Now you say the edge was broken down with a shovel?
A. Yes, sir.
Q. And sometimes with a trowel?
A. Yes, sir.
Q. That was cut down right through, straight?
A. No, sir; we were not particular about it.
Q. That cuts pretty nearly down to the floor, almost way down?
633 A. All the stones break out very easy; makes it rough.
Q. The coarse stuff underneath is porous and spongy like; it cuts it very easy?
A. Yes, sir; the way gravel is.
Q. The upper material is close and compact; that really makes the close finish on top?
A. Yes, sir.

Q. After this floor is set awhile the joints open, don't they?
A. Different places crack sometimes when the building settles.
Q. The crack runs along where the joint is?
A. Sometimes they crack crosswise.
Q. Usually they crack along the seam?
A. Sometimes they do.
Q. Don't they generally?
A. I never took any notice of that.
Q. You cannot state positively, then?
A. No, sir.
Q. Your idea is they would be more likely to crack across the seam than across the block?
A. Of course they might do that.
Q. Why would they be more apt to do that?
A. Perhaps they would crack where we stopped at night.
Q. Did you see the work around Pabst's fountain?
A. Whereabouts is that?
Q. In his yard there, around the fountain; in his yard in Milwaukee, across from the office of the brewing company.

634 Objected to.

A. That little piece there; yes, sir.
Q. Do you remember how that was made?
A. No, sir. Do you mean around the fountain in the garden?
Q. Yes, sir.
A. That is flag.
Q. Those flags had a joint line between, across them?
A. Yes, sir.
Q. How was that made?
A. With a piece of iron; marked it across.
Q. With a piece of iron?
A. Yes, sir; a straight edge, a piece of iron run right along the straight edge.

Testimony as to work in the garden objected to.

Q. In these diamond sidewalks those blocks separated in separate blocks after awhile, did they not?
A. I guess they did.
Q. And they separated along the line that is marked across here?
A. Yes, sir.
Q. Did you ever see one of these taken up?
A. No, sir.
Q. Do you know they can be taken up by commencing on the edge?
A. Maybe—I don't know—breaking them off.
Q. You have not taken notice of that especially?
A. No, sir.
Q. Did you work for Perkins and Stevenson too?
635 A. Yes, sir.
Q. Making the same kind of walks?
A. Yes, sir.

Q. And brewery floors?
A. I didn't make any floors for them.
Q. How long did you work for Perkins and Stevenson?
A. I don't know; I guess about two summers.
Q. And two summers for Jenkins and Selby?
A. I did not work for Perkins and Stevenson at all; it was Jenkins and Selby I worked for.
Q. Mr. Hurlburt worked for Jenkins and Selby at the same time you were with them?
A. A short time.
Q. Did any one in Chicago lay these pavements before Jenkins and Selby, that you know of?
A. I don't know.
Q. You have frequently seen Mr. Hurlburt make these flag pavements in Chicago the same as this was made in Pabst's garden?
A. Yes, sir.
Q. Striking the joint line off in that way?

Objected to as immaterial.

Q. About how deep is that joint line cut—an eighth or a sixteenth of an inch?
A. About a sixteenth of an inch—just make a mark through.
Q. Then the cracking runs along that line?
A. Yes, sir. It is done to make the mark.
Q. These hooks on here set down on the block like that, right up close between them?
A. Yes, sir.
636 Q. That is cut down between the two blocks?
A. Yes, sir.
Q. Then you finish right up to this?
A. Yes, sir.
Q. Then you took your straight edge, with a notch in it, which rests on the other block, and you float right across it?
A. Yes, sir.
Q. That gives a smooth finish?
A. Yes, sir.
Q. After this stone is finished then you draw this out, like this?
A. Pull it up straight; yes, sir.
Q. Then you take a trowel and smooth it over again?
A. Yes, sir.
Q. Cement sets very quickly?
A. Yes, sir.
Q. Portland cement commences to set as soon as you put water to it?
A. Yes, sir.
Q. When the block separates afterwards it separates on the line where this parting strip was?
A. Yes, sir. How do you mean?
Q. This parting strip, we will say, goes right along here?
A. Yes, sir.
Q. Or right along here?

A. Yes, sir.

Q. These blocks separate on the line where the parting strip was; is not that so?

—. ——.

Q. They don't separate through here, but here; they separate along this line?

637 A. Yes, sir.

Q. The joint line?

A. Yes, sir.

Q. In making the blocks, in the first place you get them as close together as you can, so the sidewalk shall always be as tight as possible?

A. Yes, sir.

Q. You understand on the outset you are going to have a joint there; you know it will crack and make a joint?

A. We never make a joint on a diamond sidewalk.

Q. You know it will separate?

A. Maybe the sidewalk settles down.

Q. Did you ever see one that did not separate?

A. I have seen it settle down and one stone crack from the other.

Q. Along this line?

A. Yes, sir.

Q. Did you ever see a sidewalk made like this that did not spread?

A. I don't know, sir.

Q. Can you tell me of one that did not, sir?

A. No, sir; I guess not.

Q. You know that when you lay them that they will separate?

A. We try to make it; sometimes they stand two or three years.

Q. But eventually they do separate?

A. Yes, sir.

Q. And the separation comes right along where the parting strip was?

638 A. Yes, sir; generally.

Redirect examination:

Q. What do you mean when you say that the pavement spreads along the joint line; what do you mean by that? In the first place, we will come to the diamond block sidewalk. Do you mean to say that these stones always crack apart or not always?

A. They don't always crack if the foundation is solid; they don't crack so often. Maybe they crack in a year or two.

Q. Do you know whether the stones do always crack apart, or don't you know?

A. I don't know, sir.

Q. Have you always looked at them after a year or two to see whether they cracked at all or not?

A. I never took notice of that.

Q. Did you mean to answer to Mr. Hey that they always cracked apart after a year or two?

A. I can't say whether they do or not.

Q. Now in regard to that flagging work such as you say was done in Pabst's garden.

A. Yes, sir.

Q. After the work was done you say that a mark was made on the stone or on the cement walk?

A. Yes, sir.

Q. How deep was that mark made into the cement?

A. About an eighth or sixteenth of an inch.

Q. A little bit of a mark?

A. Yes, sir.

Q. What is it made of?

639 A. A piece of iron struck right along.

Q. Whereabouts on this garden walk were these marks made?

A. Right there where they put the stones together.

Q. What was that mark made for?

A. It looks more — a flag or stone, then.

Q. Was it made for anything else except the looks?

A. I guess that is all.

Q. Did the mark that was made on the top here about an eighth or sixteenth of an inch in depth do any good to the walk that you know of?

A. Only the looks of it.

Q. Does the work afterwards crack along the line of that mark, so far as you know, where you have made that mark?

A. I didn't take any notice of it.

Q. Did you ever see it crack along the line afterward?

A. I never looked to see.

Q. You don't know whether it does or not?

A. No, sir.

Q. Do you know whether this flagging pavement, so called, cracks at all anywhere afterwards?

A. I don't know.

Q. Didn't look at all?

A. No, sir.

Q. Was it part of your business to look afterwards to see whether the pavement cracked anywhere?

A. No, sir.

640 Q. Did the making of this mark in the flagging pavement, such as the garden pavement, have anything to do with the cracking of it, so far as you know?

A. No; I guess not.

Q. Did you mean to say to Mr. Hey that this mark was made on the top of the flagging pavement so that it should crack along the line of that mark?

A. I did not say so. The mark is only made there for show. We always make the mark right along the line. We always make the the line where we put one stone against the other. If it should crack, if one stone settles, it may crack there.

Mr. HEY: I understand you to say you don't know whether it always cracks along that line?

A. I took no notice. I say, so far as I know the business, if it should settle down one stone it could not crack any other place except that.

Q. It would be more likely to crack where the new block had been placed against the old one?

A. Yes, sir; right there in the joint.

Q. If it should happen to settle the other way—across the other way—then the long sections might crack right across, might they not?

A. Yes, sir.

Q. In fact, you never noticed the cracking at all?

A. I never took notice of the cracking at all.

NOVEMBER 23D, 1883.

Examination of Mr. HURLBURT resumed:

By Mr. HEY: Supposing a diamond block pavement is laid
641 under the Schillinger patent and the pavement is, say, two months old, can a block be removed from the center of the pavement without breaking the same?

A. It is possible if the lines were perfect, as described in Schillinger's specifications.

Q. Would there be any trouble in taking out one of the side blocks or end blocks of the Schillinger pavement?

A. It could be done from the outer edge.

Q. And I understand you to say that, commencing on the outer edge, your diamond blocks can be removed?

A. Yes, sir; several months after they are laid. It would be difficult at first, when it is new.

Q. When your diamond blocks are laid the first row laid in the mold are often completed before the adjoining blocks are formed?

A. Yes, sir; the surface is finished.

Q. And the edge where the frame is withdrawn is straight and quite smooth?

A. Yes.

Q. And is set compactly together?

A. Yes.

Q. And in laying what are termed flags the work is done in the same way substantially?

A. Yes, sir.

Q. And, with the exception of cutting the edge with a shovel, the floors are laid in the same way?

A. Yes, sir; the cutting with a shovel is merely breaking down the edge. I may state further—I don't know but I did in the commencement—we have laid floors without breaking down the
642 edge by not filling up to the timber into four, six, or ten inches. Cutting down the edge the workmen commenced that way of doing in order to make the material combine. Where we don't fill up to the timber it leaves a ragged edge always to lay up to again.

Q. You made an affidavit in your own behalf in the injunction proceedings?

A. Yes, sir.

Q. And does this statement occur in that affidavit: "That in 1874 he invented certain improvements in the method and device of laying concrete pavements and floors, for which he obtained letters patent No. 162,172, dated April 20th, 1875; that since 1874 all pavements made by him have been made by the use of the device and by the method or process shown and described in his said patent and in no other way in laying diamond block pavements; that in laying square, being in imitation of flag pavements and floors, he has used scantling and joists, having a mold instead of the V-shaped or half molds shown and described in the patent?"

A. Yes, sir.

Q. And were the floors which you laid for the Phillip Best Brewing Company laid in the way stated in that affidavit?

A. Materially laid in the same way, of course.

Q. As I understand you from your testimony here your idea is that concrete in setting shrinks?

A. Yes, sir; it contracts after a time. I cannot tell in what time. In colder weather it would be double or more time than when
643 laid in hot weather, for the reason that in cold weather the material is contracted and in warm weather it expands, more or less.

Q. And the experience which you have had in laying sidewalks convinces you that you are correct in this idea?

A. In what particular idea?

Q. In regard to the shrinkage.

A. Yes, sir.

Q. The effect of the weather, &c.?

A. Yes, sir.

Q. As such experience enables you also to construct your pavements in order to avail yourself of the cracks mentioned, and to control the same to some extent of getting a practical and successful pavement?

A. Yes, sir.

Re-examined by Mr. SMITH:

Q. Tell us what the facts are in regard to the fresh cement adhering to the pavement previously laid, so far as you have not explained it.

A. The first coat being laid some half an hour, more or less, before the second block, the first block has already commenced to crystallize and set and leaves a much harder surface than the new blocks; of course, the new block being in a plastic state still, it does not adhere to the first strongly, the first block having a comparatively smooth surface. The material, being of gravel and cement enough to fill up the interior, leaves a comparatively smooth surface to
644 the first, all the particles of sand and gravel being parted on a straight line; consequently all the adhering properties would be all that was given to it from the new block laid against it.

The old block would not impart much, if any, adhering qualities. The blocks would adhere more or less for some time. The separation may be caused by the ground heaving, or frost, or contraction by setting.

Q. I understood you to say yesterday that you had purchased all this thin sheet iron which is used as hooks on your parting strips?

A. Yes, sir.

Q. What is the size that you make those?

A. We usually get them an inch and a quarter square and then bend, turn a lip on one side of three-eighths, and drive into the wood, as shown on the exhibit here marked A.

Q. That is the ordinary size, is it?

A. Yes, sir; full parting strips.

Q. What did you mean by your answer to Mr. Hey yesterday that the success of the blocks is due to the separation?

A. Experience teaches us there will come a contraction joint on the timber line in time; it may be weeks or months after being laid, although the joint is closed and adheres more or less at first. It would be what you would term a solid mass at first in appearance.

Q. Could that be closed with fresh cement—the cracks?

A. What cracks?

Q. You say there is a contraction joint. Do you mean a crack at the line?

645 A. Afterwards; yes, sir.

Q. Can that be filled with fresh cement?

A. No, sir. Many times it is not the size of a hair. It has the appearance of being larger years afterwards from chafing the corners.

Q. But I do not understand how the success of the blocks is due to separation. What do you mean by answering affirmatively to Mr. Hey's question of that kind?

A. In laying a long walk it would relieve it from cracking irregularly. In a ground spring or shrinkage it would naturally give out in the weakest place.

Q. Would not it be better for your business and work if there were no cracking at all?

A. If we could provide against the settling of the ground, of heaving or frost.

Q. But when you lay the floors of a malt house you expect ordinarily to have something that will not settle, don't you?

A. We do. On the ground floor it is not subject to frost, and, being in the walls of a building, the upper floors would only be subject to the springing of the joists.

Q. Don't you aim there to have a floor that will not have any joints in it?

A. Yes, sir, supposing it to be a permanent foundation.

Q. Then you would not say that the success of a floor for a malt house is due to separation at all, would you?

646 A. No, sir; not at all. It is an entirely different paving from outside, where it is exposed to the elements.

Q. The meaning, then, of your remark is that, inasmuch as there

must be some cracking on the out-door walks, it is better to have it along the lines, along the timber lines?

A. Yes, sir; or where the timber is removed from.

Q. What is the object of making these slight impressions between a 16th and an 8th of an inch in depth along a so-called flag pavement?

A. It is merely *to* at first; when it is first done it will look like imitation flags. A pencil mark on the top will answer the same purpose until the shrinkage takes place.

Q. Has it any connection at all with the cracks that ultimately come?

Objected to as improper and incompetent and calling for a conclusion.

A. Not at all, if the top coat is not parted at all. If it was put on continuous over all the places where the timber is removed, the lower strata being parted two inches by the timber, the cracking would come up through the top course without any cutting or marks. Experience has shown that in a good many instances where they have cut the line, where they have made the mark outside from where the timber is removed one-fourth of an inch or so, the break would come where the timber is removed from, leaving the line at one side an eighth or quarter of an inch or so.

647 Q. Does the crack, in fact, follow the mark so made by you in any degree?

A. Not in the least, unless we place the mark directly over.

Q. Then it don't follow it, I suppose?

Objected to.

A. It follows the line where the timber is removed from, irrespective of any work.

Q. You make those marks sometimes, I understand you, with a V-shaped strip?

A. Yes, sir.

Q. Of metal?

A. No, sir; of wood, usually.

Q. How deep is it impressed into the soft pavement?

A. Perhaps a 16th of an inch. (Witness illustrates.) That would be a corner piece; we would make a corner by beveling off each side; it would be something near a square, which would make the line nearly as broad again as deep.

Q. You speak of sometimes using a piece of twine or string to make the same mark?

A. Yes, sir.

Q. How large a piece of string or twine is used for that purpose?

A. Less than a 16th of an inch in diameter, a little larger than this string attached to the board C.

Recross-examined:

648 Q. In finishing these flag pavements it would not be desirable to have a series of marks running across the flags?

A. No.

Q. Consequently, knowing that these flags will ultimately spread, what is your aim in making that mark there; I mean do you aim usually to get it over the line of separation?

A. Yes, sir.

Q. Now, the indentation in the smooth upper course when made in the proper place leaves a smooth joint line after the separation, does it not?

A. It would make a mark line as smooth as made. Of course in time that line would not be so smooth from wear or chafing.

Q. And you say the aim is to get this line over the timber line?

A. Yes, sir; in the inner line of the timber, of course.

Q. In malt-house floors you say there is a shrinkage of the timbers and joints which compose the foundation?

A. A settling uniformly perhaps.

Q. Does that have a tendency to open the joints in the floors?

A. It might in the weaker places both ways.

Q. As a matter of fact, does it not have such a tendency?

A. It has a tendency to crack the floors where there is any springing in any way, not in particular lines as I know of.

Q. That is about the same as in overhead plastering, isn't it?

649 A. It would have a tendency to crack the floor above the same as cracking the plastering beneath the floor overhead; jarring, or a heavy weight falling on it from above, causing vibration.

Q. As a usual thing, in these cement floors the cracking comes along the joint, does it not, or the point where the two sections come together?

A. No; only where we leave off at night, no more apt to, as we make no separation in the floor during what is laid in the day.

Re-examined:

Q. You do not think of anything else left unexplained?

A. Not that is material, that I know of. We have laid floors without ever filling up to the timber at all, using the timber we strike over the work. We have laid several malt houses in that way. Instead of cutting down we leave the edge raw and rough, place the timber off four or five inches further and strike off, and not allowing the material to come to the timber. That is really the better way.

Q. The difference is that in those cases you do not fill the vacant space full up to the edge of the scantling, but leave a few inches between the scantling and the fresh material you have laid in there?

A. Yes, sir; we have laid work that way considerably.

Q. Using the scantling in that case then, only, for a rest for your straight edge?

650 A. Yes, sir; keep the floor in uniform thickness. Blocks placed several feet apart in place of the scantling would have the same result to raise the straight edge upon.

MICHAEL BOTZLER sworn:

I came to this city in 1868 or 1869.

Q. Have you been in the business of laying cement floors in Chicago?

A. Yes, sir.

Objected to.

Q. Since when?

A. Since I was foreman, in 1869, — Edward Wistemeyer.

All testimony of this witness is objected to on the ground that it is improper, no foundation for the same in the answer or otherwise, and counsel gives notice that on the hearing of this case he will move to have the same suppressed.

Q. Did you lay cement floors in 1868 and 1869?

A. July and August was the first floor.

Q. What did you lay—what sort of a cement floor?

A. Malt floor in the brewery—Hook's Brewing Company.

Q. In the city of Chicago?

A. In the city of Chicago.

Q. In the floor of that malt house?

A. Yes, sir; in the cellar. They used it for malting.

Q. What materials did they use?

A. Gravel, sand, and Portland cement.

651 Q. What was the manner of laying that floor?

A. I speak not good English.

Q. What kind of tools did you use?

A. Plastering trowel and all them things made for this kind of work.

Q. Did you use any strips or boards or straight edge?

A. We used strips.

Q. Made of what?

A. Made of small strips, about like this, and scantling two by three.

Q. What did you do with the scantling?

A. Took it outside to lay the floor to make it all level.

Q. About how much of this floor do you cover at one time?

A. Two and one-half inches deep mostly.

Q. How wide?

A. About four feet wide—three and one-half or four.

Q. How long?

A. The cellar was 150 feet long. Most scantling is about 16 feet long.

Q. How long a place on the floor did you cover at one time?

A. As long as the floor is. We finish the floor, then take the scantling away.

Q. Take this first section you made, before you take the scantling away you make that up against the side or end of the floor, do you?

A. The end of the floor; yes, sir.

652 Q. You lay that scantling how far from the end of the floor—about how far? When you lay your strip of scantling

along—how far was it from the end of the floor you laid the scantling the first time?

A. About four feet.

Q. And how long a strip of scantling did you lay down, or strips of scantling?

A. As long as the floor is; so long as the floor is.

Q. You fill up this vacant space between the scantling and the wall, do you?

A. Yes, sir.

Q. Do you fill it up to the scantling, clear up from the wall—all the way to the scantling, four feet wide?

A. Yes, sir; fill the whole piece up.

Q. Then put in the fine material on the top?

A. Yes, sir.

Q. Do you take out the strip before you put in the fine material?

A. No; we don't.

Q. Put in the fine material first?

A. Yes, sir.

Q. Is this strip what you call the scantling?

A. The strip is about three-fourths of an inch thick and the scantling is two inches thick.

Q. Where does the strip come—on the top of the scantling?

A. No, sir; on the side of the fresh material.

Q. Suppose that the scantling and that is the strip, where does the strip go?

A. The strip goes right on here; and then we make another piece on just as wide as this; I call this four feet. We leave the strip in.

653 Q. You put the strip so, do you?

A. Yes, sir.

Q. Against the side?

A. Yes, sir. Then we finish the next block; then we take this out and finish with the fine material.

Q. The strip goes in by the side of the fine work? How deep down does the strip go?

A. Clear to the bottom of the floor.

Q. When you have got that done you pull that out and fill it up with the cement?

A. Cement and sand; yes, sir.

Q. What do you leave the strip in there for?

A. This material is soft; if I had no strips the corner would break off, that is all.

Q. Do you use that strip in making square blocks alone like that or in making this floor in the malt house?

A. We use the blocks just the same if we make sidewalks with flags; I use them just the same.

Q. And the use of the strip was so as to prevent the finished sections on blocks from breaking off?

A. Yes, sir.

Q. When you had got the second section all filled up so, you moved the scantling back another four feet, did you?

A. Yes, sir.
Q. And put the strip where the scantling was then?
A. Yes, sir.
Q. And so go on until the whole floor is covered?
A. Yes, sir.
654 Q. In laying this floor did you have a coarser material at the bottom and then a finer material, with more cement in, on the top?
A. Yes, sir.
Q. Are you using this method now in making cement floors?
A. Oh yes, sir; just the same.
Q. And you have used it ever since 1869?
A. Yes, sir; every year. I worked for myself since 1872.
Q. When you laid these cement floors did you try to make joints between the two sections, or did you try to fill and stop all the joints? This floor in the malt-house, what did you do there about joints; did you want to make joints or take away the joints?
A. Take away the joints, leave them off, smooth them up on the top.
Q. What did you fill these places with where you took the strips out?
A. With fine material—sand and Portland cement.
Q. When you made these malt-house floors did you try to make them so that they would remain in separate sections or so that they would be all in one solid mass?
A. All in one solid mass.
Q. Did you make also outside walks—pavements in blocks?
A. Yes, sir; we made it in blocks.
Q. Do you mean diamond blocks, such as are shown in the model here?
655 A. I did make some.
Q. When you made those diamond block pavements or flagstone pavements do you leave joints in them between the separate blocks?
A. We fill the joints up; after this we put some strips in there, and leave the strips out and put small strips in about a 16th of an inch thick; leave them out and fill it up.
Q. And how long a time is it since you have been doing that on those outside pavements?
A. 1872, 1873; I don't know exactly when first.
Q. Did you begin laying malt floors before you laid outside pavements?
A. Yes, sir.
Q. You think you did not make any pavement at all until 1872?
A. Yes, sir; I laid some pavement in 1872?
Q. I mean before 1872?
A. Yes, sir; I did; I was foreman before.
Q. That is what I mean. Did you make any pavement, either working for yourself or Westmeyer, before 1872?
A. We made something; I guess we didn't make it outside. I

think we made it inside of the building. I know one place we made it in Chicago on the west side.

Q. Do you remember the name?

A. Schuettler.

Q. When you laid these floors of cement did you pound down the floors hard?

A. Yes, sir.

Q. Where did you first see these strips used between the sections or blocks?

656 A. I didn't see it. I made it myself. It was my own idea when I started in 1869.

Q. Do not these cement floors sometimes crack or draw apart—open where the strips went?

A. Yes, sir; sometimes.

Q. Sometimes not?

A. Sometimes not. Sometimes settles the ground a little.

Q. Did you proceed in this way when laying floors—by one section after another until the whole floor was laid?

A. Yes, sir.

Q. Did you try when laying these floors in sections to keep the edge of the section already completed smooth and straight until the next one was filled in against it?

A. Yes, sir.

Q. And until the next one was set a little, I suppose?

A. Yes, sir.

Q. How wide did you say or how thick were those strips you put in between the sections?

A. One-half or one-fourth of an inch thick.

Q. And running all the way across the floor the whole length of the section?

A. Yes, sir.

Q. Do you remember laying any other floor in 1869?

A. I laid a pavement for Downer and Bemis, in the basement of their malt house, on South Park avenue, in Chicago, between 23d and 24th streets.

657 Q. Did you lay that in the same manner and using the same tools as you have been describing?

A. Yes, sir.

Q. Did you afterwards lay similar floors in the years 1870, 1871, and 1873?

A. Yes, sir; I laid strips every year.

Q. Did you lay any in those years I have mentioned anywhere else besides Chicago?

A. Yes, sir; I laid one in St. Louis.

Q. For whom in St. Louis?

A. Schneider Brewing Company.

Q. Do you remember his first name?

A. I don't know his first name.

Q. When you laid pavements or sidewalks did you use the same kind of strips that you used in the malt house?

A. Mostly; not every time.

Q. Were the strips as thick as those in the malt house or thinner?
A. Mostly one size.
Q. Did you leave these strips in or always take them out as soon as you got the next block or section laid?
A. As soon as the next block is finished then we take them out.
Q. And always fill up the joints or holes left with fine cement?
A. Fine material; yes, sir.
Q. That is, sand and cement?
A. Yes, sir.
Q. Have you had many men in your employ on this sort of work during these years you have mentioned?
658 A. I had sometimes 8, sometimes 16, and sometimes 24.
Q. All at one time?
A. All at one time.
Q. Do you recollect what time in 1869 it was that you first laid the floor or laid any floors in cement?
A. It was the first I laid here in Chicago.
Q. When was it—what time in the year?
A. The first was in July or August.
Q. Did you ever lay any anywhere before that time?
A. No, sir.
Q. Had you ever laid any cement floor or seen cement floor laid before then?
A. I guess not. I saw some in the old country, not here.
Q. What year?
A. 1865—1864 I saw some in the old country.

Objected to. Improper and incompetent.

Q. Are those cement floors common in Germany?
A. Yes, sir; we use the same cement. We use English Portland cement in Germany.
Q. I mean are they much used there; are many floors made in Germany?
A. Most floors for malt-houses are made in this way—made of cement.
Q. What part of Germany did you see them in?

Same objection.

A. It was in Bavaria.
Q. You lived there, did you?
659 A. Yes, sir.
Q. What part of Bavaria—what city?
A. Straubing and Munich.
Q. Do you know whether those cement floors have been long in use there, in Germany?

Objected to.

A. I know at that time, not before. I was a young man at the same time.
Q. Did you ever see any made there?
A. Oh, yes, sir; I saw some made before this.

Q. Did you see the men making them?
A. I seen them at the same time, in 1864 and 1865.
Q. How did they make them there?
A. Most use stone, coarse stone; cuts them in pieces and mix them with sand and Portland cement altogether for the coarse stuff; then they put the fine a quarter of an inch on top.
Q. Make them with the strips and scantling as you do them?
A. We didn't use the strips inside; instead we used the scantling outside.

Cross-examined:

Counsel for complainant gives notice that he shall move to have this witness' testimony relating to use in Germany expunged, under the ground of his objection, at the hearing of this case.

Q. How many floors did you lay down in Bemis' brewery?
A. Only one.
Q. Is that in use now?
660 A. No; I guess Hurlburt made it over.
Q. How many floors in Huck's did you say?
A. Two.
Q. Are they in use now?
A. No; the house burned down in 1871.
Q. You say you have laid a good many sidewalks in Chicago?
A. Yes, sir; I did.
Q. How many, do you think?
A. A couple of hundred, I guess. I don't know how many.
Q. Where were they laid mostly; what part of the city?
A. Most on the North Side; some on the West Side; a good deal on the West Side; some on the South Side; not much on the South Side.
Q. Is your name stamped on the walks?
A. Yes; sir; in some places, not all.
Q. Can you furnish a list of the sidewalks which you laid in Chicago?
A. Yes, sir; of some.
Q. Will you furnish a list and have it attached to your deposition?
A. Yes, sir. How soon do you want it?
Q. In two weeks. How were those sidewalks made; were they all flags?
A. Square blocks. The most is in flags about 4 by 8, 4 by 6; some 4 by 7. Some sidewalks is 8 feet wide, some 7, and some 6.
Q. Those walks were made with a small thin strip between the joints?
A. Yes, sir.
661 Q. And then the strips are taken out afterward?
A. Yes, sir.
Q. And fine material filled in?
A. Yes, sir.

Q. Did you make any of them and cut them in on the top with a trowel?

A. Yes, sir; I did.

Q. Between joints?

A. Cut a joint in, take the strip out and finish, and afterwards cut the joint with a trowel; just put the strips on and make joint with trowel.

Q. Is that the way all those flags were made?

A. Mostly.

Q. Did you lay the diamond blocks?

A. Some.

Q. How did you make the joints in those?

A. Didn't make any joints in the diamond blocks; lifted the strip out.

Q. Did you put the thin strips in?

A. Thin strips about a 16th of an inch thick.

Q. Between the blocks? Then you lifted them out and made it smooth?

A. Yes, sir.

Re-examined:

Q. Do you believe you can give the name of every man you made a sidewalk for?

A. I don't know every man. There is a good many I did work for. It is over ten years since I worked in Chicago, starting in 1872.

(Witness is excused by complainant's counsel from making the list.)

662 EASTERN DISTRICT WISCONSIN:

I, Francis Bloodgood, examiner in chancery, certify the foregoing to be a true copy of all the testimony taken before me under rule 67 in equity in the cause entitled in the caption thereof, such testimony being taken by stipulation between the parties and their voluntary appearance.

Dated Milwaukee, January 23, 1883.

FR. BLOODGOOD,
Examiner in Chancery.

DEFENDANT'S EX. BRITISH PATENT No 1.

A. D. 1837. No. 7489.

Cement for Paving and Building Purposes.

Claridge's specification.

To all to whom these presents shall come I, Richard Tapin Claridge, of Salisbury street, Strand, in the county of Middlesex, gentleman, send greeting:

Whereas her present most Excellent Majesty Queen Victoria, by her letters patent, under the great seal of Great Britain, bearing date

at Westminster, the twenty-fifth day of November, in the first year of her reign, did, for herself, her heirs and successors, give and grant unto me, the said Richard Tappin Claridge, her especial license,
663 full power, sole privilege and authority, that I, the said Richard Tappin Claridge, my executors, administrators, and assigns, or such others as I, the said Richard Tappin Claridge, my executors, administrators, or assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend within England, Wales, and the town of Berwick-upon-Tweed the invention of "mastic cement or composition, applicable to paving and road-making, covering buildings, and various purposes to which cement mastic, lead, zinc or composition are employed," communicated to me by a certain foreigner residing abroad; in which said letters patent is contained a proviso that I, the said Richard Tappin Claridge, shall cause a particular description of the nature of the said invention and in what manner the same is to be performed to be enrolled in Her Majesty's high court of chancery within six calendar months next and immediately after the date of said in part recited letters patent, in and by the same, reference being thereunto had, will more fully and at large appear:

Now know ye that, in compliance with the said proviso, I, the said Richard Tappin Claridge, do hereby declare the nature of the said invention to consist in a combination, by means of heat, of certain substances hereinafter described, into a mastic cement or composition, applicable to paving and road-making, and various purposes to which cement mastic, lead, or composition are employed, and one of such substances is a natural compound, consisting
664 principally of carbonate of lime and bitumen, with a small portion of aqueous and other matter, and such natural compound is commonly called or known by the name of asphalte or asphaltos, or calcareous asphalte, asphaltic mineral, or asphaltic rock or asphaltic stone, and such natural compound is hereinafter called asphalte. It is found at Pyrimont, near to Seyssel, in the Department de l'Ain, in the Kingdom of France, and in other parts of the Jura Mountains and in other places in great abundance, and the other of such substances is bitumen or mineral or other pitch.

And I do hereby describe the manner in which the said invention is to be performed by the following statement: I take the said asphalte in its native state, as it is extracted in masses from the mine, and I greatly prefer, for the purpose of my invention, the asphalte from Pyrimont aforesaid. The said asphalte from Pyrimont aforesaid contains, in addition to a small portion of aqueous and other matter, carbonate of lime and bitumen in about the proportion of ninety parts carbonate of lime to about ten parts of bitumen, and the cement formed according to the said invention from the said asphalte of Pyrimont and bitumen is better than that formed from any other asphalte which I have yet been able to procure, although asphalte is found in other places, and I reduce the asphalte to powder. The asphalte may be reduced to powder solely by mechanical means,

but the reduction thereof to powder is facilitated by heat. I
665 usually place the native asphalte in a furnace or oven, the bottom whereof is made of plate iron. In about half an hour, by the application of a brisk fire, the asphalt falls, or is readily reduced to powder. The asphalte, after having been exposed to heat, as above mentioned, or otherwise, or reduced to powder or small parts by mechanical means, is then passed through a sieve, the meshes of which are about one-fourth of an inch square. The asphalte which has passed through such a sieve is in a fit state to be mixed with the bitumen, or mineral, or other pitch, — is found in a natural state, combined with earthy or other matter, in great quantities, in the neighborhood of Pyrimont and in other places. I have ordinarily used the bitumen found in the neighborhood of Pyrimont, but the bitumen as found elsewhere may be used without injuring the quality of the cement produced; or other pitch may be used instead of such mineral pitch as aforesaid. The bitumen is freed from its extraneous matter in the ordinary way. In forming the cement or composition according to the said invention, when I use the asphalte of Pyrimont and the bitumen or mineral pitch, also from the neighborhood of Pyrimont, I take about ninety-three parts of asphalte reduced to powder, passed through such a sieve as aforesaid, to about from seven to ten parts of such bitumen or mineral pitch. The quantity of bitumen intended to be used is first placed in a melting cauldron or furnace, and when it is dissolved the powdered asphalte is added gradually; the mixture is kept carefully stirred
in order that it may not be burnt, and also that the
666 asphalte and bitumen may be perfectly amalgamated. The mixture is kept over the fire, carefully stirred until the whole is thoroughly combined and is nearly fluid. This combination is the mastic cement or composition according to the said invention. The melting cauldron or furnace should be kept over rather a slow fire until the mixture is nearly in a state of ebullition. It then gives out a light, white smoke in jets and is fit for use. When other asphalte is used, instead of the asphalt of Pyrimont, the quantity of bitumen to be added will vary according to the particular nature of the asphalte, and the proper quantity will easily be found by trial, and when bitumen or mineral or other pitch than that from the neighborhood of Pyrimont is used the precise proportion will easily be determined by trial.

In applying the said cement or composition to paving I add to about every two hundred pounds weight of the nearly fluid, mastic cement about half a bucketful of very small, clean, and hot gravel or sand. This is carefully stirred up with the mastic, and as soon as it is sufficiently fluid—that is, as soon as the mastic begins to give out the light, white smoke previously described—it is fit for use. It may then be run into molds and remain until cold, when it will form blocks or slabs, which may be laid upon any proper foundation. One consisting of concrete and mortar is usually adopted. These blocks or slabs are cemented together by pouring
the fluid, mastic cement, either mixed, as aforesaid, with fine
667 gravel or sand or without fine gravel or sand, between the

interstices of the blocks or slabs. Sometimes a thin coating of mastic cement is spread over the foundation and the blocks or slabs are embedded therein. In such case the cement is also poured in between the interstices, as above described.

If it be desired that the pavement should be ornamented so as to represent mosaic or other work the process of forming the blocks or slabs is as follows: First, a large surface is formed, either of wood or plaster, upon which the required pattern is drawn. This surface or a convenient portion thereof is enclosed with iron bars of the intended thickness of the slab. Over this surface a thin coat of transparent glutinous size is spread. As the following work advances pebbles of various colors, pieces of porcelainware, earthenware, glass, or other materials of the required forms and colors are deposited upon their allotted portions of the pattern, either to represent foliage or fretwork or any other device. By means of the weak size they are very lightly retained in their places. The mastic cement or composition, heated as above and either mixed with fine gravel or sand, as aforesaid, or unmixed, is poured into the space enclosed with iron bars as aforesaid. This mastic cement or composition fills up the interstices between the pebbles, pieces of porcelainware, earthenware, glass, or other materials and forms with them a hard slab. This is inverted and slabs thus formed are cemented together in the same manner as blocks or slabs are previously described to be cemented.

668 In forming ways or paths I usually proceed thus: Upon a proper foundation I place two flat iron bars parallel to each other, at a convenient distance from each other, say from three to four feet. These bars are of the thickness to which the mastic cement or composition is intended to be spread, usually about half an inch thick. Between these bars the fluid mastic and fine gravel or sand, mixed as aforesaid, is poured and spread, and the surface made regular and uniform by passing a thick piece of wood with one straight edge backwards and forwards upon the iron bars. Upon the surface while still in a semi-fluid state I usually sift fine hot gravel, which I beat into the mastic with wooden stampers. When the mastic is set the operation is repeated until the surface required for the way or path is covered. As the operation proceeds the surface of the cement already set renders the use of one of the iron bars unnecessary.

I apply the said cement in road-making either superficially, in manner hereinafter mentioned—that is to say, upon the surface of a road formed of the usual materials in the usual way, and the bottom whereof has undergone the usual preparaton, I pour the said mastic cement or composition, either with or without the fine gravel or sand, when the same is heated just so as to give out the light white smoke aforesaid, and the said mastic cement or composition forms with such stones a hard and compact surface, or I apply the said mastic cement under the hard materials, and in such

669 case I spread a thin coating of the said cement, either mixed with or without fine gravel or sand, between the substratum

and the hard materials for the purpose of preventing the hard materials being injured by the land springs.

In applying the said cement or composition for the purpose of covering buildings I usually cover the roof with canvas similar to that used by paperhangers, stretched tolerably tight, and upon this canvas I spread a layer of the said mastic cement, heated as last aforesaid, to about the thickness of four-tenths of an inch ; and upon the surface of the said mastic, and when the same is in a semi-fluid state, I sift gravel previously heated in a cauldron, and as the mastic sets I beat the said gravel into the said surface of the said mastic with flat wooden stampers about fifteen inches long and nine inches broad until the gravel is incorporated into the substance of the said mastic.

The process of applying the said mastic to the lining of tanks, reservoirs, and various purposes to which cement mastic, lead, zinc, or composition is employed is very similar to that previously described. In such lining no gravel or sand is used with the said mastic, but a coating thereof is applied whilst the said mastic is of the heat hereinbefore mentioned—that is to say, when it just begins to give out a white, light smoke, previously described. For the bottom surface of tanks or reservoirs a simple covering of the said mastic, applied in the manner aforesaid, is sufficient. For the sides of such tanks or reservoirs the face of each brick which
670 is intended to be inwards and exposed to the water is first covered with a thin coat of the said mastic cement or composition. This is done by laying the bricks side by side on a level of ground as if they were to form a pavement. Then the fluid mastic is thinly spread over their whole surface as soon as it begins to set, which is in a few seconds, and before it becomes hard. The blade of a large knife is passed between the bricks, cutting the mastic through. At the same time the process leaves each brick with one face covered with the said mastic cement. This done, the walls or sides of the tanks or reservoirs are built, and each brick is set in fluid mastic instead of calcareous mortar or cement, and for greater security a space of about half an inch is left between the inner and outer bricks which form the side walls of the tanks or reservoirs. This space is filled up with the fluid mastic as the brick-work advances. This is the process usually adopted.

From the above descriptions *as* the said mastic cement or composition, it may easily be applied to various other purposes to which cement mastic, lead, zinc, or composition is employed.

And whereas I do not claim as the said invention the mode of reducing the said asphalte to powder, or the separate use of the said asphalte or bitumen or mineral or other pitch as a mastic cement or composition, but I do claim as the invention the combination, by means of heat, of asphalte, meaning thereby a natural compound consisting principally of carbonate of lime and bitumen, with a small portion of aqueous and other matter, by whatever
671 name or names such natural compound be called or known, and bitumen or mineral or other pitch into a mastic cement or composition applicable to paving and road-making and various

purposes to which cement mastic, lead, zinc, or composition is employed, and such invention being, to the best of my knowledge and belief, entirely new and never before used within that part of her said majesty's United Kingdom of Great Britain and Ireland called England, her said majesty's dominion of Wales, or the town of Berwick-upon-Tweed:

I do hereby declare this to be my specification of the same, and that I do verily believe this my specification doth comply in all respects, fully and without reserve or disguise, with the proviso in the said hereinbefore in part recited letters patent contained, wherefore I do hereby claim to maintain exclusive right and privilege to the said invention.

In witness whereof I, the said Richard Tappin Claridge, have hereunto set my hand and seal this twenty-fourth day of May, in the year of our Lord one thousand eight hundred and thirty-eight.

[L. S.] R. T. CLARIDGE.

And be it remembered that on the twenty-fourth day of May, in the year of our Lord 1838, the aforesaid Richard Tappin Claridge came before our said lady the Queen in her chancery, and acknowledged the specification aforesaid and all and everything therein contained and specified in form above written, and also the specification aforesaid was stamped according to the tenor of the statute made for that purpose.

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Inrolled the twenty-fifth day of May, in the year of our Lord one thousand eight hundred and thirty-eight.

WILSON.

DEFENDANT'S EX. BRITISH PATENT NO. 2.

A. D. 1852. No. 350.

Paving.

(This invention did not proceed to the great seal.)

Complete specification filed by Auguste Chesneau at the office of the commissioner of patents, with his petition and declaration, on the 12th October, 1852, pursuant to the 9th section of the patent law amendment act, 1852.

I, Auguste Chesneau, of Welford Place, Leicester, in the county of Leicester, oil merchant, do hereby declare the nature of the said invention for "the manufacture of an indestructible paving" to be as follows:

This process consists in dividing cast iron in small pieces of the size and form of gravel. That division takes place when the cast iron is in fusion. In that state it is thrown through two or three iron sieves placed over a cistern or reservoir filled with water in which the liquid iron falls and immediately cools. It is in that state that I employ that cast iron for my proposed paving.

673

In that state it may be placed upon the surface of the roads in the same manner as stone is used in macadamizing, but,

as the passing of vehicles and horses would continually disturb the iron, it is my intention to bind the iron gravel together by means of a cement which I compose and which is made of rosin, Roman cement, and rosin or linseed oil. Any other sort of bitumen might be employed for that purpose, but I propose that composed by me as obtaining more easily the necessary elasticity and avoiding the effect produced by pressure and weight.

I place those three ingredients in an iron caldron. When they are in a boiling state I introduce the particles of iron. I allow it to boil a short time in order to give it a high degree of heat. I then take it out with a riddled ladle. I place it on the road intended to be paved, keeping it on an uniform thickness of one or two inches, and then beat it down while it is still warm, so that the iron when cold becomes so fixed as not to be liable to be disturbed or to sink.

The apertures made in the roads for the purpose of placing gas and water pipes always occasion much disarrangement to all sorts of paving. My system would be open to the same disadvantage, for it would be necessary to break it and melt it again in order to replace it. To avoid that difficulty I have made wooden panels from two to two and a half inches thick. I unite several of them together with wooden bars nailed. Those panels will be three feet
674 long and two feet wide (more or less). I bind those panels with iron bands and screws. Those bands are wide enough to admit of a portion projecting beyond the surface of the panel, according to the thickness of the paving. The other part of the width is fixed upon the side of the panel.

That iron band is to contain the matter constituting the paving, which I place on the surface of the said panel of the thickness (more or less) and beat down in the manner already specified.

AUGUSTE CAESNEAU. [L. S.]

DEFENDANT'S EX. BRITISH PATENT NO. 3.

A. D. 1855, 26th November. No. 2659.

Artificial Stone and Cement.

Letters patent to Francois Coignet, of 90 Rue Hauteville, Paris, in the Empire of France, for the invention of "certain improvements in the use and preparation of plastic materials or compositions to be used as artificial stone or as concrete or cement for building and other purposes."

Sealed the 20th May, 1856, and dated the 26th November, 1855.

Provisional specification left by the said Francois Coignet, at the office of the commissioners of patents, with his petition, on the 26th November, 1855.

675 I, Francois Coignet, of 90 Rue Hauteville, Paris, in the Empire of France, do hereby declare the nature of the said invention, for "certain improvements in the use and preparation of plastic materials or compositions to be used as artificial stone or as

concrete or cement for building and other purposes," to be as follows:

The improvements relate to the production of artificial stone, concrete, or cement from various combinations of sand, gravel, broken flint, broken stone, burnt or unburnt soil, more or less clayey, cinders and coal refuse, scoria, wood ash, dross and residue of metallurgical works, natural or artificial puzzolanas with unctuous or hydraulic chalk, very fine sand, such as that of downs and heaths, or a silicious one, similar to that of Fontainbleau & Montmorency, in France, and in the employment of such matters, when compounded, in the formation of a house and houses and other buildings, cellars, vaults, raised walls, arched and horizontal platbands, forming the upper part of all bays, doors, and windows, roofing in the form of earth-works, platforms, and flagging of one or many colors, mouldings and ornaments in relief upon the surface of walls, cornices, balusters, balconies, fillets, entablatures, columns, and capitals; in short, all that comes under the list of masonry work in the construction of houses and habitations, such as manufactories, workshops, vaulted or otherwise, furnace walls, foundation stones for placing steam-engines, pumps, and machines of all kinds
676 and descriptions, platforms, and flagging for workshops and yards, &c., hydraulic and road works of every description, sewers, aqueducts, bridges, culverts, viaducts, dykes, dams, sluice-gates, canals, water reservoirs, &c.

The matters to be mixed are pounded together, and when used the desired forms are given by moulding and compression on the wall or other formation, and repeating the operation till the structure desired is obtained, the whole without brick or stone facing and without wanting to use any coat.

Specification in pursuance of the conditions of the letters patent filed by the said Francois Coignet in the Great Seal Patent Office on the 26th May, 1856.

To all to whom these presents shall come, I, Francois Coignet, of 90 Rue Hauteville, Paris, in the Empire of France, send Greeting:

Whereas her most Excellent Majesty, Queen Victoria, by her letters patent, bearing date the twenty-sixth day of November, in the year of our Lord one thousand eight hundred and fifty-five, in the nineteenth year of her reign, did, for herself, her heirs and successors, give and grant unto me, the said Francois Coignet, her special licence that I, the said Francois Coignet, my executors, admin-
677 istrators, and assigns, or such others as I, the said Francois Coignet, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man an invention for "certain improvements in the use and preparation of plastic materials or compositions to be used as artificial stone or as concrete or cement for building and other purposes," upon the condition

(amongst others) that I, the said Francois Coignet, my executors and administrators, by an instrument in writing under my or their or one of their hands and seals, should particularly describe and ascertain the nature of the said invention and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said letters patent:

Now know ye that I, the said Francois Coignet, do hereby declare the nature of my said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement—that is to say:

The improvements relate to the production of artificial stone, concrete, or cement from various combinations of sand, gravels, broken flint, broken stone, burnt or unburnt soil, more or less clayey, cinders and coal refuse, scoria, wood ash, dross, and residue of metallurgical works, natural or artificial puzzolanas with unctu-
678 ous or hydraulic chalk, very fine sand, such as that of downs and heaths, or a silicious one, similar to that of Fontainebleau & Montmorency, in France, and in the employment of such matters when compounded in the formation of a house and houses and other buildings, cellars, vaults, raised walls, arched and horizontal platbands forming the upper part of all bays, doors, and windows, roofing in the form of earth-works, platforms, and flagging of one or many colors, mouldings and ornaments in relief upon the surface of walls, conices, balusters, balconies, fillets, entablatures, columns, and capitals—in short, all that comes under the list of masonry work in the construction of houses and habitations, such as manufactories, workshops, vaulted or otherwise, furnace walls, foundation stones for placing steam-engines, pumps, and machines of all kinds and descriptions, platforms and flagging for workshops and yards, &c., hydraulic and road-works of every description, sewers, aqueducts, bridges, culverts, viaducts, dykes, dams, sluice-gates, canals, water reservoirs, &c.

The matters to be mixed are pounded together, and when used the desired forms are given by moulding and compression on the wall or other formation and repeating the operation until the structure desired is obtained, the whole without brick or stone facing and without wanting to use any coat.

But that the nature of my said invention may be more fully understood I will proceed to explain the composition and some of the modes of using such plastic material or composition.

679 1st. I compose the concrete of sand, grits, metals, and broken stones, to which I add a certain proportion of more or less clayey but crude (that is to say, unburnt) soil, the whole being mixed with a certain proportion of ordinary or hydraulic lime.

2nd. I compose it also of sands, grits, metals, and broken stones, with cinders and scoriæ of coals and metals, of more or less clayey earth, but burnt, and with natural or artificial puzzolana, adding these various materials either jointly or separately, and mixing to the wholea certain proportion of ordinary or hydraulic lime.

3d. I compose it also with very thin sand (such as landes, downs,

sea sands, sands similar to those of Fontainebleau and Montmorency, marly or clayey sands), with addition of coal or metal cinders and scoriæ, more or less clayey soil, but burnt, natural or artificial puzzolana, and especially, if necessary, of marly or clayey but burnt sands, the whole being mixed either jointly or separately with a certain proportion of ordinary or hydraulic lime.

For the manufacture of the said concretes I use the ordinary or hydraulic lime slackened on the ordinary plan in order that it may form a paste as solid as possible. The cinders and scoriæ of coals, the burnt, clayey earth, the metal ashes and scoriæ, and the natural or artificial puzzolana must be used under the form of very thin powder, their tenuity giving much more energy to their action, and consequently permitting their quantity to be considerably lessened, as that also of the ordinary or hydraulic lime; however, in places where coal cinders are abundant it will be unnecessary to grind them to powder, and they may be used as supplied from the furnaces. In such cases a greater proportion of cinders is to be employed for the manufacture of the concrete, and the cinders can even be used alone with lime. The sand, gravels, or grits must be as clear as possible, of clayey soil or crude marls.

The mixture of the various materials that are to compose the concrete is effected by machinery. It can be completed at once, but then the operation is more difficult and requires more time and care without ever giving a concrete wholly homogeneous. I consequently prefer to proceed as follows: To prepare the concrete No. 1 I mix by a first crushing ordinary or hydraulic lime with the sand, grits, gravels, and broken stones, and by a second grinding I mix to the mortar obtained by the first crushing more or less clayey crude soil. In this case the crude earth must be wetted or crumbled, so that it may become easily divided and speedily mixed. To prepare the concretes Nos. 2 and 3 I mix by the first crushing ordinary or hydraulic lime with the coal cinders and scoriæ, burnt earth, metal cylinders and scoriæ, natural or artificial puzzolanas, and also the burnt marly or clayey sand if employed. All the latter materials can be put in the mixture jointly or separately. Afterwards I mix the mortar obtained by the first crushing with the sands, grits, broken stones, and thin sands. The above concretes, whatever may be their composition, must be obtained as a very solid and almost pulverulent paste in order to resist the percussion of hard bodies and also to agglomerate better. When the concrete is perfectly pounded and has the appearance of a very thick paste I cast them in a mould established on the wall itself or on the place where a work of masonry is to be built and either above or under the ground. The mould has in interior the shape of the intended part of building cast thin layers of concrete into this mould established on the wall, and I mould, ram, or pile up, agglomerate, and compress it by the repeated percussion of some hard and weighty body. When the mould is filled I disjoint it and bring it to any other place to fill it again. The mould can also be left filled, if thought necessary, and only disjoined after the concrete has become hard in the mould.

By the use of my concrete in moulds on the wall as aforesaid I am enabled to erect any building whatever, either solid or hollow or in relief, and by the moulding of the concrete on the wall I am enabled to form a monolith building, whatever may be its mass, height, or disposition. The same concretes can also be used to manufacture bricks, tiles, pipes, and artificial stones of any description or shape whatever by means of piling and compressing in moulds specially disposed and having in the interior the form or shape of the desired object. The said artificial stones can, moreover, have all dimensions whatever and be destined to any desired purpose.

682 Under the name of masonry I understand every building of stone or bricks, either upon the ground or under and of whatever form, use, and dimensions, and in fact anywhere. By means of my concretes I build these constructions without any facing, casing, or basement whatever, of stone or bricks, which do not enter in the building, even for the circumference of openings, doors, and windows or as angle or band stones, cornices, entablatures, or ornaments. In these buildings are comprised specially any constructions to be used as habitations, of any size, form, and destination; also of cellars with their vaults, the said cellars being built of concretes erected with full walls and without openings by means of general floors; also of concrete, and established on the whole area of the proposed building are consequently wholly tight and inaccessible to the outward water; also any other floors of molded concretes to replace everywhere the brick pavements, flag stones, shingles, and compartment ceilings; and if necessary I can also form roofings—any roofings whatever, of any size, surface, destination, and situation, established either on vaults or on iron, cast iron, or wood, carpentry, or established as follows—that is to say, this new description of floorings is established by laying on the walls to support the flooring a certain number of iron stop planks parallel one to another and reposing on the walls by their ends so as to be completely supported by the whole thickness of the wall. The number and strength of said iron plank is in proportion to the pitch and

683 to the area of flooring to establish; for instance, for a flooring of 15 ft. so a side or 225 square feet I have employed three iron planks, 4½ inches deep, of which 3 feet weighed about 22 lbs., but instead of iron planks I can establish iron rods placed at convenient distances apart one from the other and traversing through and through the four walls supporting the flooring, so that these iron rods cross symmetrically one another and look somewhat like a chess-board. These rods, being in the shape of a screw and having a nut at each end, will prevent the walls from losing their perpendicularity. Should the flooring have a great span and a large area strong iron beams would be placed at convenient distances and the iron planks and rods would rest on these beams. Afterwards (after the establishing of either iron planks or iron rods) I arrange beneath, at a distance of at least 2½ inches, a false flooring similar to that commonly used to build the ordinary plaster ceilings. This false flooring is to have the form intended to be given to the under part of the floors—that is to say, either a horizontal form or with

compartments, covings, voussures, either in hollow or relievo, or with ornaments, &c. Afterwards I pour on the false flooring my plastic material, which is rammed or beaten down, agglomerated and compressed, as hereinabove described, and I add by degrees new concrete or plastic material until the beams, planks, and rods be wholly covered by the concrete and the total thickness of the flooring be attained. The above part or surface of the flooring must be leveled according to the pattern, or by any method whatever. Afterwards the concrete is left to harden during a sufficient time, and when hard the false flooring is taken away. In order to increase the hardness of these floorings and avoid the alkalinity of the lime the surface may be washed with a dissolution of biphosphate of lime. When this operation is finished I have only to give a coating of paint to the lower part and a coat of encaustic on the part of above to complete the flooring. By this plan I build floorings with an advantage, as regards economy and solidity, much superior to all ordinary systems of floorings.

684

My concretes or plastic materials are also used for building roofs of any shape whatever, as cupolas, spherical vaults, terraces, or garret roofs. As to the terrace roofs, they are only floorings built according to the plan above described—that is to say, by means of beams, planks, or rods drowned in the plastic material. I have only to observe that in this case a stronger washing with biphosphate of lime will be required in order better to prevent the atmospheric actions, and moreover the above surface must have the necessary declivity for the running of the water. As to the curb, mansard, spheric, and cupola roofs I establish a frame or arch work having the shape to be given to the roof and bearing in juxtaposition with the walls forming the circuit of the building on which the roof is to be established. Then on or *and* continuing these walls I put new concrete or plastic material, but successively, and leaning on the frame-work, which in this case is to be used as a mould, I ram, pile up, and agglomerate, as usually. The whole circumference of the said wall must be made simultaneously and by concentric layers till the top is reached. This top may be terminated by an opening or lantern or otherwise. The outer surface is carefully polished, and when the concrete is become hard and dry I wash the outer surface with a solution of biphosphate of lime, and I take away the frame-work. The trenches and gutters may also be reserved in the concrete without employing any special pipes or any casing of cement or metal.

685

My concrete or plastic material and the manner of using the same can be applied to any agricultural or industrial workshops, either covered with concrete or not; to all the workshops, floorings, walls, and passages; also to any shed, docks, or warehouse; to any hydraulic works whatever, such as large aqueducts, tanks, and reservoirs, mill courses, dams, weirs, dikes, moles, piers, quays of whatever description, canal banks, bridges, culverts, sewers, drains, ditches, &c.; to any cisterns, cesspools, pits of all descriptions, gasometer pits, tan pits, retting pits, ovens for the manufacture of china and earthen ware, water tanks, or reservoirs of any shape and size

whatever; to all ordinary road-works, such as retaining walls, bridges, culverts, tunnels, parapets, pavement, floors covering the road; to all works for railways, such as tunnels, aqueducts, viaducts,
686 bridges, culverts, retaining walls, quays, crane mass works, turn-plate mass work, or mass work for any other machinery, sewers, pavements, workshops, stations, warehouses, docks, and sheds, either covered with concrete or not, with their floors, fence walls, covers, &c., girders to support rails, tank columns, tanks—in short, any masonry works used for railways; to any underwork masonry whatever, silos, and storehouses.

Having thus described the nature of my said invention, I would have it understood that what I claim is—

Firstly. The introduction in the composition of concretes or plastic material of certain hydraulifying substances before referred to in the form of thin powder, such as the coal cinders and scoriæ, metal works cinders and scoriæ, burnt clayey earth, natural or artificial puzzolana, which substances in their state of division can easily combine with lime, render hydraulic the unctious lime, increase the quickness and energy of the hardening of hydraulic lime, and, above all, by the use of the whole system, admit of lessening the quantity of lime to be introduced in the concretes or plastic materials without any prejudicial action as to the solidity.

Secondly. The composition, preparation, and manner of employing the above-described concrete or plastic material, into which I introduce more or less clayey crude earth, which allows of reducing the quantity of lime, and consequently to lessen the cost; this concrete is especially useful for agricultural purposes, as neither water nor frost can act on it.

687 Thirdly. For obtaining concrete by means of thin sand, so that this concrete becomes quickly hard and convenient to any building purposes.

Fourthly. For the use of the biphosphate of lime, in order to increase the hardness of the surface of the concrete, to render the same unpermeable, and to destroy the alkalinity of lime, which allows the application of paints having a fat or resinous basis.

In witness whereof I, the said Francois Coignet, have hereunto set my hand and seal this twentieth day of May, in the year of our Lord one thousand eight hundred and fifty-six.

FRANCOIS COIGNET. [L. S.]

Witness:

CH'S. HASENFELD,
12 *Place de la Bourse, Paris.*

Defendant's Ex. British Patent No. 4.

A. D. 1856. No. 771.

Paving.

Letters patent to Charles Jean le Melorel de la Haichois, of 39 Rue de l'Echiquier, Paris, and of 4 South street, Finsbury, London, advocate, for the invention of "certain improvements in paving."

Sealed the 12th September, 1856, and dated the 31st March, 1856.

688 Provisional specification left by the said Charles Jean le Melorel de la Haichois at the office of the commissioners of patents, with his petition, on the 31st March, 1856.

I, Charles Jean le Melorel de la Haichois, of 39 Rue de l'Echiquier, Paris, and 4 South street, Finsbury, London, advocate, do hereby declare the nature of my said invention for "certain improvements in paving" to be as follows—that is to say:

These improvements consist, first, in an application on the part to be paved of a (beton) composition of lime and sand to the thickness of about six inches.

Second. In a second application of asphalte mixed with stone to the thickness of about two inches.

Third. In a third application of asphalte, pure or mixed with sand, to the depth of about one inch, in which squares or sheets of vulcanized caoutchouc or gutta-percha are embedded at equal distances. In this third application a layer of asphalte of about half an inch in depth is first laid down and afterwards small squares of vulcanized caoutchouc or gutta-percha of about half an inch in thickness and half to three-quarters of an inch in breadth placed on it. These squares are placed at six to ten inches apart and are provided with iron hooks or ties at distances from six to ten inches, which pass through them from side to side. A second bed of
689 asphalte, pure or mixed with sand, is then laid down to the depth of about half an inch, so as to cover the iron hooks or ties and come up to the level of the squares of caoutchouc or gutta-percha. The third application may be made by first laying down a coating of asphalte mixed with stone, with small wooden cross-pieces of one to two inches in breadth and about one inch in thickness, and placing on them the squares of caoutchouc or gutta-percha prepared as above described. In this case the application of asphalt to the thickness of one inch may be effected at one operation.

Specification in pursuance of the conditions of the letters patent filed by the said Charles Jean le Melorel de la Haichois in the Great Seal Patent Office on the 26th September, 1856.

To all to whom these presents shall come I, Charles Jean le Melorel de la Haichois, of 39 Rue de l'Echiquier, Paris, and 4 South street, Finsbury, London, advocate, send greeting:

Whereas her most Excellent Majesty Queen Victoria, by her

letters patent, bearing date the thirty-first day of March, in the year of our Lord one thousand eight hundred and fifty-six, in the nineteenth year of her reign, did, for herself, her heirs and successors, give and grant unto me, the said Charles Jean le Melorel de la Haichois, her special license that I, the said Charles Jean le Melorel de la
690 Haichois, my executors, administrators, and assigns, or such other as I, the said Charles le Melorel de la Haichois, my ex'rs, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man an invention for certain improvements in paving, upon the condition (amongst others) that I, the said Charles Jean le Melorel de la Haichois, by an instrument in writing, under my hand and seal, should particularly describe and ascertain the nature of the said invention and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said letters patent:

Now know ye that I, the said Charles le Melorel de la Haichois, do hereby declare the nature of my said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement thereof—that is to say:

These improvements consist in the employment of lime, sand, asphalte, caoutchouc, gutta-percha, and marine glue and wood for the purpose of forming an even and durable pavement, which substances are applied in the following manner:

A layer composed of lime and sand (beton) is laid down
691 to the thickness of about five inches on the part to be paved, then a layer of asphalte mixed with stones to the thickness of about two inches is applied, after which a layer of asphalte, either alone or mixed with sand to the depth of about one inch, is laid down, in which are embedded at certain equal distances strips or bands of vulcanized caoutchouc or gutta-percha.

In the last application *or* layer of asphalte of about half an inch in depth is first laid down, and afterwards the strips or bands of vulcanized caoutchouc or gutta-percha or other analogous substances of about half an inch in thickness and from a half to three-quarters of an inch in breadth, so as to form squares or lozenges. The strips are placed from six to ten inches apart and are secured together by iron hooks or ties at a distance of three to five inches from each other, which hooks pass through them. Instead of using hooks the strips may be beveled at the edges, so as to be firmly embedded in and secured by the asphalte. When the strips are laid down a second layer of asphalte is applied, so as to be on a level with the strips of caoutchouc.

The paving may be constructed by first laying down, on a bed or layer of asphalte mixed with small stones, small pieces of wood (of about one to two inches in breadth and half an inch in thickness), injected according to Dr. Boucherie's process. Upon these cross-pieces

are placed the strips or bands of vulcanized India-rubber or gutta-percha, prepared as hereinbefore described.

692 As asphalte does not naturally adhere to caoutchouc it is necessary to apply a thin coat of marine glue or other similar substance to those parts to be placed in contact with the asphalte before being laid down; the asphalte, being hot, will cause the marine glue to melt and adhere to it strongly. The strips of caoutchouc should be embedded in and secured to the asphalte during the cooling of the latter.

Having now described the nature of my said invention and the manner in which the same may be carried into effect, I would observe that I do not confine myself to the precise details herein laid down, reserving to myself the right of modifying the same; but what I claim is the method of constructing pavement in the manner hereinbefore described.

In witness whereof I, the said Charles Jean le Melorel de la Haichois, have hereunto set my hand and seal this twenty-third day of September, in the year of our Lord one thousand eight hundred and fifty-six.

CH. J. LE MELOREL DE LA HAICHOIS. [L. S.]

Witness:
M. F. MENNONS.

693 DEFENDANT'S EXHIBIT No. 5.

No. 79991. A. D. 1839.

Artificial Stone, Marble, &c.

To all to whom these presents shall come I, George Robert D'Harcourt, of Howland street, Fitzroy Square, in the county of Middlesex, gentleman, send greeting:

Whereas her present Most Excellent Majesty Queen Victoria, by her letters patent, under the great seal of Great Britain, bearing date at Westminster, the sixth day of March, in the third year of the reign, did, for herself, her heirs and successors, give and grant unto me, the said George Robert D'Harcourt, her special license, full power, sole privilege and authority, that I, the said George Robert D'Harcourt, my ex'ors, adm'ors, and assigns, or such others as I, the said George Robert D'Harcourt, my ex'ors, adm'ors, or assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein mentioned, should and lawfully might make, use, exercise, and vend within England, Wales, and the town of Berwick-upon-Tweed, and also in all Her Majesty's colonies and plantations abroad, my invention of "improved artificial granite, stone, marble, or concrete," in which said letters patent is contained a proviso that

694 I, the said George Robert D'Harcourt, shall and will cause a particular description of the nature of my said invention and the manner in which the same is to be performed to be enrolled in her said majesty's high court of chancery within six calender

months next and immediately after the date of the said in part recited letters patent, as in and by the same, reference being thereunto had, will more fully and at large appear:

Now know ye that, in compliance with the said proviso, I, the said George Robert D'Harcourt, do hereby declare the nature of my said invention and the manner in which the same is to be performed are fully ascertained and set forth in and by the following description of the mode of making my improved artificial granite, stone, marble, or concrete and for applying the same to various purposes—that is to say:

I first cast a quantity of resin into a melting pot, and when the resin is perfectly melted I add linseed oil or tallow thereto in proportion to the degree of ductility I wish to give the mixture. The quantity of oil which may be added is from one pint to one gallon to a ton of resin and the quantity of tallow about from one pound to eight pounds to a ton of resin. The purpose of adding the linseed oil or tallow being to give the resin such a degree of ductility as will enable it to mix with the other ingredients herein subsequently directed to be added; the exact proportions to be used will depend greatly on circumstances, and must be left to the ex-
695 perience and judgment of the operator. I next add to this liquidized resin about twice its weight of whiting or chalk, well pulverized, and stir or agitate the whole till the resin, the oil or tallow, and the whiting or chalk are thoroughly mixed and incorporated with one another, taking particular care to distribute the whiting or chalk as equally as possible throughout the whole mass, and that none of it is left in the state of lumps or patches. I now leave this composition or mastic to stand for about one hour and then withdraw it from the melting pot in the form of loaves by means of wooden or other moulds. These loaves are now ready for going through the following additional process, in order to convert them into artificial ganite or stone: I put one or more of these loaves again into the melting pot, and when they are perfectly melted I add well picked oakum or other suitable fibrous substance in the proportion of about ten pounds to a ton of the other material, stirring all the while the ingredients of the pot with a spatula or other agitator. When the oakum or other fibrous material has been well incorporated with and diffused throughout the mastic I add from six to eight times the weight of the mastic of perfectly dry sand, stirring again till the sand is thoroughly mixed with the other materials. The whole of this composition or mixture is then left to boil for about two hours, after which it is in a state fit to be applied as a substitute for natural granite or stone in manner following—that is to say:

For payments—The ground having been duly prepared, a
696 first layer of the composition is spread thereon (being taken from the melting pot in a fluid or semi-fluid state) to the thickness of about one-fourth of that intended to be given to the whole block or stone. Another layer is afterwards added of three-fourths the thickness of the first, and its surface smoothed by means of hot irons. Railway blocks, columns, pillars, urns, slabs, blocks for

building, or other articles usually cut or hewn out of natural stone or granite may be made of this composition by casting it in moulds of the desired shape.

To make artificial marble.—I take the mastic or composition made as first hereinbefore directed and melt it in a clean melting pot, taking great care in the course of melting that no particles of soot, coal, wood, or other foreign matter get into the composition, which might make the polishing of the artificial marble into which it is to be formed difficult if not impossible. When the mastic or composition is perfectly fluid I add thereto thrice its weight of pulverized whiting and stir the whole well together, after which the pot is to be left to boil for about two hours. I then add natural marble of different colors, broken into small pieces, in the proportion of two parts for each part of the resinous and chalky composition. The pieces into which the natural marble is broken must not be so large as that *of* any of them shall get detached in the course of polishing the artificial marble, as hereinafter directed, so as to leave holes and flaws in the surface thereof. Instead of the broken marble small
697 pebbles or large pebbles or flint broken into small pieces may be used, in which case the flint or pebbles must be perfectly clean and dry, with no particles of earth or dirt or sand adhering to them. This mixture must be left to boil for about an hour, and must be stirred the while, so as thoroughly to intermix and incorporate the ingredients with one another.

The mode of applying this composition so as to produce an artificial marble suitable for tessellated or other pavements is as follows: The ground or floor upon which it is intended to lay the pavement being duly prepared, the whole surface is to be covered with a first layer or foundation of the artificial marble composition of about one-fourth of the entire thickness of the intended pavement. The design or pattern desired to be given to the pavement is formed in zinc or tin moulds or frames of three-fourths the depth of the first layer or foundation, and these moulds or frames, being placed upon the first layer or foundation, the fluid composition, prepared as aforesaid, is to be poured into them as soon as the contents of one set of patterns or designs is hard and dry; the metal frames or moulds are to be removed and a further portion of the pattern proceeded with, and so on to the outer border or edge of the piece of pavement or parquetry to be formed. The surface of pavement so formed, being perfectly dry and hard, may be ground and polished in the same way that natural marble *are* polished. When the surface is made perfectly smooth and to the eye perfectly homogeneous a varnish of gum
698 lac may be passed over it. The artificial marble, whether employed for pavement or other purposes, will be, to a certain degree, of the colors of the materials of which it is composed, but in every case the appearance will be more or less that of natural marble.

And having now fully described my said invention and the manner in which the same is to be performed, I declare that what I claim as new and of my invention the mode or modes hereinbefore described of making an artificial granite, stone, marble, or concrete,

and I declare that I do not confine myself to the precise proportions of ingredients hereinbefore indicated, or the prescribed order of their addition to one another, or to the precise lengths of times which they are directed to remain combined between each operation hereinbefore described, although those which I have stated are what I would recommend and have found in practice to be most beneficial; and such my invention being, to the best of my knowledge and belief, entirely new and never before used within that part of her said majesty's United Kingdom of Great Britain and Ireland, called England, her dominion of Wales, town of Berwick-upon-Tweed, or in any of her said majesty's colonies and plantations abroad, I do hereby declare this to be my specification of the same, and that I do verily believe this my specification doth comply in all respects fully and without reserve or disguise with the proviso in the said hereinbefore in part recited letters patent contained; wherefore I hereby claim to maintain exclusive right and privilege to my said invention.

699 In witness whereof I, the said George Robert D'Harcourt, have hereunto set my hand and seal this sixth day of September, one thousand eight hundred and thirty-nine.

[L. S.] G. R. D'HARCOURT.

And be it remembered that on the sixth day of September, in the year of our Lord 1839, the aforesaid George Robert D'Harcourt came before our said lady the Queen in her chancery and acknowledged the specification aforesaid and all and everything therein contained and specified in form above written, and also the specification aforesaid was stamped according to the tenor of the statute made for that purpose.

BROUGHAM.

Inrolled the sixth day of September, in the year of our Lord one thousand eight hundred and thirty-nine.

Ex'd: E. L. L., C. F.

DEFENDANT'S EXHIBIT No. 6.

A. D. 1843. No. 9737.

Wood Pavements, Floorings, and Veneers.

Austin's specification.

To all to whom these presents shall come I, Henry Austin, of No. 87 Hatton Garden, in the county of Middlesex, civil engineer, send greeting:

700 Whereas her present most excellent majesty hath granted unto me her letters patent bearing date at Westminster, the twenty-fifth day of May, in the sixth year of her reign, for making, using, exercising, and vending within that part of the United Kingdom of Great Britain and Ireland called England, her dominion

of Wales, and town of Berwick-upon-Tweed, and also within all Her Majesty's colonies and plantations abroad, my invention of "improvements in wood pavements, floorings, and veneers," subject to the usual proviso, obliging me to particularly describe and ascertain the nature of my said invention and in what manner the same is to be performed, by an instrument in writing under my hand and seal, and to cause the same to be enrolled in the high court of chancery within six calendar months next after the date of the said letters patent:

Now know ye that, in compliance with the said proviso, I, the said Henry Austin, do hereby describe and ascertain the nature of my said invention and in what manner the same is to be performed as follows—that is to say:

The nature of my invention consists in gluing or cementing, in the manner hereafter described, blocks of wood cut and placed, as after described, onto planks or slabs or other pieces of wood or onto stone, slate, or iron for wood pavements, and in gluing or cementing in like manner, as after described, veneers or surfaces of wood for floorings and other building purposes, cut and placed, as after
701 mentioned, onto wood, metal, slate, stone, cement, tile, or any other suitable substance. The wood, stone, slate, or iron on which I glue or cement the blocks for pavements I denominate the bed or foundation of the blocks. The wood for the blocks and veneers or surfaces is to be cut at a right angle or any considerable angle less than that to the fiber or grain of the wood. The bed or foundation, when of wood, of the pavement blocks is to be placed or laid down on the earth or road with the fiber or grain of this wood running horizontally, and any wood on which the veneers for floorings or other building purposes are to be laid or fixed, as after mentioned, must in a similar manner run in the opposite direction or angle to the fiber or grain of the veneer.

To make my wood pavement with wood foundations for roads I take any suitable number of planks or slabs or pieces of wood of convenient size and thickness for the foundation, and this foundation is to be glued, cemented, keyed, pinned, or otherwise fastened together in compartments, upon which foundations I glue or cement the wooden blocks, of any convenient shape and size, without any fastening or connection together of the blocks and with intervals or spaces between them to the entire depth of the blocks. These intervals or spaces may be of the width of an inch and a half or thereabouts, and are to be filled in with broken stone, refuse, or broken slate, grit, gravel, sand, or any hard or any fibrous substances, this filling in being cemented or concreted together with liquid
702 lime or cement poured in, or with pitch or lac and caoutchouc dissolved in naphtha, melted and poured in, or with any other adhesive liquid materials. The pavement thus formed will present a constant, secure footing and avoid that slipperiness which is prevalent in other wood pavements when worn; and the great advantage which will be found in this mode of pavement is that the footing in its wear will keep pace with the wear of the blocks and still present the same secure foothold. The compartments are to be

strengthened by means of ledges, glued or otherwise secured across them underneath; and, for the purpose of securing the whole paving together when wood is the foundation, the compartments should fit into each other or be glued, nailed or screwed, or otherwise fastened onto separate pieces of timber laid underneath; they may also be tied down when necessary by means of iron ties or in any other convenient mode. If the blocks be square or oblong the ends may be laid together without the intervals or spaces between the ends, but forming parallel lines, and intervals in the lengths only to be filled in, as herein described. When the foundation is stone, slate, or iron the blocks are to be glued or cemented onto such foundations in like manner as onto wood foundations, and the pieces or slabs are then to be laid down and embedded on the earth or road.

The method of making foot pavements is precisely similar to road pavements, except that I prefer not to leave intervals between the blocks, and the materials used may be of lighter substance
703 and the blocks of less depth than for carriage roads.

To make my floorings I cut in the same manner, in respect of the angle as to the fiber, as before described, with respect to the blocks for pavements, the wood to form the veneers or surfaces of the floors, this wood being properly prepared and seasoned and cut thin in the nature of a veneer. This I call my surface veneer, and I prefer for most purposes for this surface veneer the thickness of about a quarter of an inch, but I use other thicknesses, as circumstances may require. I glue or cement this veneer onto the floor boards or other materials composing the floor in a similar manner as before described, with respect to the gluing or cementing of the blocks for pavements onto their foundations. This then forms the surface of the flooring, and it will sometimes be convenient first to form and lay the veneer on a thin bedding or foundation of planking instead of the immediate floor in compartments, to be nailed, screwed, glued, or otherwise fastened onto the floor, the veneer being glued or cemented onto this thin bedding or foundation of planking in the mode described, where it is to be glued or cemented onto the floor boards or flooring direct.

For ornamental floors I use various colored woods, natural or artificial, and after the wood has been cut into the required thickness for the surface veneer I, for the most part, stamp or cut the pieces into any form desired by means of stamps or cutters; but some-
704 times the pieces of wood for the veneers are shaped by suitable planes to the forms required throughout their length and are then cut across with fine saws of the thickness required. If the pattern consists of very small parts the pieces of wood to form it I glue together in lengths, and I then cut the piece so formed into lengths across with fine saws into the required thicknesses as veneers, and with the veneers so cut I form different patterns by arranging and gluing or cementing them as veneers according to the pattern onto the flooring boards or other floors or bedding, as already described, and in the operation of gluing I apply pressure to the parts by any convenient means in order to obtain as close a joint as practicable. When the work will admit I glue the surface veneer onto

the floor or bedding, as the case may be, as above described, in as large pieces or sections as practicable; and in order to guard against and avoid warping from damp or heat which might occur, and at the same time produce more decidedly the effect or resemblance of Mosaic work, I divide these large pieces or sections after they are glued to the floor or bedding as described into smaller parts, either by stamping them or by cutting them through in opposite directions by a series of fine saws; I then fill up the spaces or joints which will be thus formed with glue or suitable cement. The surface veneer prepared in manner hereinbefore described I lay or fix in the required position upon and so as to form the surface of the flooring with glue or cement, as above described, where there is no
705 intermediate bedding, as above mentioned; and where there is such a bedding, then by fastening that by nails, screws, glue, or other suitable means onto the floor boards or floor. The surface veneer being laid and fixed should be planed and scraped or rubbed to an even surface and polished if required by sand or glass paper or by other desirable means.

My method of veneering and preparing veneers for other building purposes than floorings and which I use for staircases, wainscoting, ceilings, and other building purposes is precisely similar to my flooring above described. For joining my wood pavements together and my surface veneers to any foundation except wood I prefer to make use of glue composed of crude naptha and caoutchouc and lac boiled together until perfectly amalgamated and to be used in a heated state; and the proportions of these materials may be two ounces of caoutchouc dissolved in one gallon of crude naptha and three times the quantity of those two articles by weight of lac. The glue I prefer to make use of for my flooring and other veneers where wood is the foundation is composed of one part of isinglass and two parts of shellac boiled together in alcohol until perfectly amalgamated and to be used in a heated state, but for either of these purposes any glue sufficiently strong and not so affected by moisture or such a degree of heat as to injure the joints would effect the object.

I have described the method to be pursued with my improvements in wood pavements, floorings, and veneers, which is most
706 simple, in my apprehension, though it must be evident that there are other ways of effecting some of the details pointed out. I am aware that small pieces of wood cut in some such way as to resemble what is before described have been at times applied in the manufacture of small ornamental furniture and fancy articles, and I do not claim this, but I do claim as my invention—

First. The gluing or cementing of wood cut at such angle as to its fiber as before described onto planks or slabs or other pieces of wood, or onto stone, slate, or iron for wood pavements, or onto wood, metal, slate, stone, cement, tile, or any other suitable substance for the purpose of veneers for flooring and other building purposes.

Second. The securing of wood paving blocks onto planks or slabs or other pieces of wood, or onto stone, slate, or iron without any fast-

enings to each other, with intervals or spaces between the blocks except at the ends where the blocks are square or oblong, as before described, and the intervals to be filled in in the manner hereinbefore described.

Third. The application of such veneers as hereinbefore described to flooring and other building purposes.

And such my said invention being, to the best of my knowledge and belief, entirely new and never before used for the same purpose or purposes within that part of her said majesty's United Kingdom of Great Britain and Ireland called England, her said
707 dominion of Wales, or town of Berwick-upon-Tweed, or in her said majesty's colonies or plantations abroad; and I do hereby declare this to be my specification of the same, and that I do verily believe this my said specification doth comply in all respects fully and without reserve or disguise with the proviso in the said hereinbefore in part recited letters patent contained; wherefore I hereby claim to maintain the exclusive right and privilege of or to my said invention.

In witness whereof I have hereunto set my hand and seal this twenty-fifth day of November, in the year of our Lord one thousand eight hundred and forty-three.

HENRY AUSTIN. [L. S.]

And be it remembered that on the twenty-fifth day of November, in the year of our Lord 1843, the aforesaid Henry Austin came before our said lady the Queen in her chancery, and acknowledged the specifications aforesaid and all and everything therein contained and specified in form above written, and also the specification aforesaid was stamped according to the tenor of the statute made for that purpose.

LYNCH.

Enrolled the twenty-fifth day of November, in the year of our Lord one thousand eight hundred and forty-three.

Ex'd: H. M. H., C. E. A.

708 DEF'T'S EX. SCHILLINGER ORIGINAL PATENT.

UNITED STATES PATENT OFFICE.

JOHN J. SCHILLINGER, of New York, N. Y.

Improvement in Concrete Pavements.

Specification forming part of Letters Patent No. 105,599, dated July 19, 1870.

To all whom it may concern:

Be it known that I, John J. Schillinger, of the city, county, and State of New York, have invented a new and useful improvement

in concrete pavements; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specifiation, in which drawing—

Figure 1 represents my pavement in plan view. Fig. 2 is a vertical section of the pavement.

This invention relates to pavements for sidewalks and other purposes, and consists in combining with the joints of concrete pavements strips of tar paper or equivalent material arranged between the several blocks in such a manner as to produce a suitable tight joint and yet allow the blocks to be raised separately without affecting or injuring the blocks adjacent thereto.

709 In carrying out my invention I form the concrete by mixing cement with sand and gravel or other suitable materials to form a suitable plastic composition, using about the following proportions: One part, by measure, of cement; one part, by measure, of sand, and from three to six parts, by measure, of gravel, using sufficient water to make the mixture plastic; but I do not confine myself to any proportions for making the concrete composition. While the mass is plastic I lay or spread the same upon the foundation or bed of the pavement, either in molds or between movable joists of the proper thickness, so as to form the edges of the concrete blocks, *a a*, &c. When the block *a* has been formed I take the strips of tar paper, *b*, of the width equal or almost equal to the height of the block, and place them against the edges of the block in such a manner that they form the joints between such block and the adjacent blocks. After completing one block, *a*, I place the tar paper, *b*, along the edge where the next block is to be formed, and I put the plastic composition for such next block up against the tar-paper joint and proceed with the formation of the new block until it is completed. In this manner I proceed in making all the blocks until the pavement is completed, interposing tar paper between their several joints, as described. The paper constitutes a tight, water-proof joint, but it allows the several blocks to heave separately from the effects of frost or to be raised or removed separately whenever occasion may arise without injury to the adjacent blocks. The paper does

710 not adhere when placed against the edge of the fully formed block, and therefore the joints are always free between the several blocks, although adherence may take place between the paper and the plastic edges of the blocks which are formed after the paper joints are set up in place.

What I claim as new, and desire to secure by letters patent, is—

The arrangement of tar paper, or its equivalent, between adjoining blocks of concrete, substantially as and for the purpose described.

This specification signed by me this 15th day of June, 1870.

JOHN J. SCHILLINGER.

Witnesses:

W. HAUFF.

C. WAHLERS.

Defendant's Ex. Huestis Patent.

United States Patent Office.

D. Huestis, of Cold Spring, New York.

Improved Pavement.

Specification forming part of Letters Patent No. 56563, dated July 24, 1866.

To all whom it may concern:

Be it known that I, D. Huestis, of Cold Spring, Putnam county, State of New York, have invented a new and improved pave-
711 ment; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a transverse vertical section of this invention. Fig. 2 is a plan or top view of the same.

Similar letters of reference indicate like parts.

This invention consists in the use of iron boxes with or without dovetailed composition or metal faces, and the interior filled with cement or any suitable hard material in such a manner that the composition or metal face, together with the outer portion of the iron box with intersecting grooves, constitutes the traveling surface. The composition or metal face is dovetailed into the interior of the box, and combined with the cement or other material so that the pressure arising from the weight imposed upon any part of the box will not cause an elevation or depression of any portion thereof.

A represents a box made of cast iron or other suitable material and divided by partitions *a* into four (more or less) compartments, *b*, as clearly shown in the drawings. The sides and partitions of the box are provided with bottom flanges, *c*, and their upper edges are grooved to give a firm hold to the feet of horses or other draft animals, and said edges are flaring at one side and provided with projecting lips *l* at the opposite end, as shown in Fig. 2. By this
712 shape of the edges each box is enabled to lock between the adjoining boxes, and a displacement of the same is avoided; and, furthermore, dovetailed spaces *d* are formed to receive the composition or metal face C. Each compartment of the boxes A is provided with such a face, and the interior of said boxes is filled with cement of any suitable nature or description, or with any other suitable material.

I propose to use, by preference, cement mixed with pebbles, so as to form a solid mass which is capable of supporting the composition or metal faces. The traveling surface *if* formed by said faces and by the upper edge of the boxes, which are grooved, and may be arranged to form a railroad track which will not interfere with the travel of ordinary vehicles.

I claim as new and desire to secure by letters patent—

The grooved street pavement herein described, the same consisting of the boxes A, with bottom flanges *c* and dovetail spaces *d*, with suitable filling, the upper edges being beveled and forming grooves when the boxes are combined, and give hold to the feet of the animals and adapted for a railway track, as specified and shown.

The above specification of my invention signed by me this 6th day of February, 1866.

D. HEUSTIS.

Witnesses:
M. M. LIVINGSTON.
W. HAUFF.

713 DEFENDANT'S EXHIBIT RUSS PATENT.

Specification forming part of Letters Patent No. 5475, dated March 14, 1848.

To all unto whom these presents may come:

Know ye that I, Horace P. Russ, of the city, county, and State of New York, civil engineer, have invented and made and applied to use certain new and useful improvements in the construction and arrangement of the parts constituting the carriage-ways of streets and roads, by which, while the durability is maintained, access can be had to sewers, water pipes, or gas pipes, or other needful fixtures beneath the surface, and the carriage-way be replaced without injury and at little cost, for which improvement I seek letters patent of the United States; and that the said improvements and the mode of arranging and constructing the same and the effect obtained thereby are fully and substantially set forth and shown in the following description and in the drawings annexed to and making part of this specification, wherein Fig. 1 is a plan of a street, road, or highway formed with my improvements and showing the progressive arrangements that commence with clearing the subsoil to receive the structure and terminate with the finish of the roadway. Fig. 2 is a section of the same across the street or road. The detached Figs. are separately referred to and the same letters, numbers, and other marks of reference apply to the like parts in all the Figs.

714 A is the subsoil, cleared to a proper depth and grade to finish the work as required. In this, *a* is a sewer and 1 is a side drain to a culvert or dwelling, *b* are water-mains, and 2 is a supply branch from 1; *c* are gas pipes, and 3 a supply branch. They are all to be made and placed before or after the construction of the road above in the usual way, and are only represented herein to identify them with the means of access to them, as shown hereafter.

When the subsoil is graded and ready a quantity of granite or other mason's or quarry chips, each from four to six or eight inches in diameter and about half that thickness, are to be laid with the flattest side upwards, in the manner shown by 4 4, in Fig. 1, and rammed down flush with the grading, so as to form an open head-

ing or partial pavement foundation for the next part of the work. This is to be proceeded in as follows:

The positions of the sewers, pipes, and branches are to be defined, and metal or wood frames laid out in the manner shown by *d d;* these are thicker at the bottoms than at the tops. The frames successively laid are to circumscribe a space or spaces forming a panel or panels over each sewer pipe and branch beneath, and may be made of sound wood, though common cast-iron or iron-stone pottery, burnt earth, or any fit material may be used for the frame pieces in the sectional form shown in larger size in the detached Fig. 3, and placed on the graded subsoil and partial pavement.

715 Then a proper set of open wooden shallow vats are to be prepared for mixing in them what is now well known by the technical name of "concrete," namely, a mixture of mason's chips, broken stone, hydraulic cement, clean sand (not salt beach sand), and fresh water in such portions as the quality of the cement will require to form a sound foundation, B, above the subsoil A, that will in a short time become an artificial flag or slab of rock about eight to ten inches thick to bear the pavement down, but before the mixture is placed into the panels or sections formed by the frames *d d*. Those panels that may hereafter have to be lifted out for access to the parts beneath are to have bars of iron laid into them, forming crosses *e* 1, with holes in them, through which they are united by an eyebolt, *c*, with a ring in the head of each bolt, as shown in Figs. 4 and 5, and in the larger panels two or more of these sets of bars, bolts, and rings may be used, while in the smaller panels one will be sufficient. The bolts employed for these purposes may be of a small extra length that will find place in the subsoil, and a counter-sink in the face of the concrete is to receive the ring. In this way, on applying power to raise the panel, the ring will lift clear of the face without breakage or injury to the concrete. The concrete is then to be filled in and consolidated, after which it may be lifted out of any panel or section, as may be required, by shears or derricks placed above, with tackles hooked into the rings *e e*, in the panel, the inverted wedge-formed portions of the frames *d d* allowing each panel of cement to be freely lifted out and placed

716 in one side while access is needed to the parts beneath and receiving the panel of cement in replacement again when the access beneath is no longer needed.

The gutter stones *f*, curb-stones *g*, and flagging of the sidewalks D may all be laid on paneled and divided sections of concrete in the same manner and with the same advantages and effects, but in the drawing the roadway only is shown thus prepared and fitted.

When the concrete foundation is fully consolidated a pavement of granite or sienite stone blocks, *e*, averaging about ten to twelve inches long, four to five inches wide, and a nearly equal depth of about ten inches, are to be carefully laid to an even surface, commencing so as to form the ranges of stones into lozenge-formed divisions, as shown in Fig. 1, by which the edges are presented diagonally to the wheel tires of carriages or to any other passing weight. The stone over the centre of each section or panel is to have two

counter-sunk holes to receive an inverted lewis, by which it may be lifted out so as to furnish the commencement of a removal to obtain access to the panel beneath, and this stone should be only set in clean sand, and all the rest of the stones are to be covered with sand that must be well washed into the interstices between the stones and then consolidated by a portion of loose grouting—that is, hydraulic cement—in a sufficient quantity of water to run freely into the sand and harden between the stones.

The formation of the pavement in diagonal lines with the
717 street is to be commenced and followed up by placing the first stone of each range so that the side shall form an abutment and tie for the head or fore end of the first stone in the next range, and the dimensions of the panels or sections and paving stones may be varied as required.

I do not claim to have invented or discovered any of the materials or parts described as used herein, all being well known.

But I do claim as new and of my own invention—

The constructing a concrete foundation, B, in panels or sections to give access to pipes and conduits below by the application and combination therewith of frames *d d*, formed of any suitable material, with a thinner edge upwards to allow the concrete mass to be lifted out when needed, substantially as described, when this is combined with a paved roadway of any kind laid thereon, as described.

In witness whereof I have hereunto set my hand, in the city of New York, this twenty-sixth day of December, one thousand eight hundred and forty-six.

HORACE P. RUSS.

Witnesses:

W. SERRELL.
EDW. W. SERRELL.

Ex'd: E. A. M., H. M. H.

718 United States Circuit Court, Northern District of New York.

JOHN J. SCHILLINGER *vs.* THE GREENWAY BREWING COMPANY.

Decided July, 11, 1883.

1. Schillinger's concrete pavements. Patent construed and sustained.

Reissue letters patent No. 4364, granted to J. J. Schillinger May 2, 1871, for an improvement in concrete pavements, construed and sustained in accordance with the decisions in Schillinger *v.* Gunther (11 O. G., 831; 14 O. G., 713; 16 O. G., 905).

2. Reissue. Original claim valid.

The invalidity of a claim in a reissue does not impair the validity of the claim in the original patent, which is repeated and separately stated in the reissued patent. (Gage *v.* Herring, 23 O. G., 2037.)

3. Foreign use no bar.

Prior use in a foreign country is no bar to a patent in this country.

Messrs. Duell & Hey, for the plaintiff; Mr. John L. King, for the defendant.

BLATCHFORD, *J.*:

This suit is brought for the infringement of reissued letters patent No. 4364, granted to John J. Schillinger May 2d, 1871, for an "improvement in concrete pavements," the original patent, No. 719 105,599, having been granted to him July 19th, 1870. The specification of the reissued patent, reading in the following what is outside of brackets and including what is in italics and omitting what is inside of brackets, says:

Figure 1 represents *a plan of* my [pavement in plan view] *pavement.* Fig. 2 is a vertical section of the [pavement] *same.*

Similar letters indicate corresponding parts.

This invention relates to [pavements for sidewalks and other purposes, and consists in combining with] *a concrete pavement which is laid in sections, so that each section can be taken up and relaid without disturbing the adjoining sections.* With the joints of *this sectional* concrete [pavements] *pavement are combined* strips of tar paper, or equivalent material, arranged between the several blocks *or sections* in such manner as to produce a suitable tight joint and yet allow the blocks to be raised separately without affecting [or injuring] the blocks adjacent thereto.

In carrying out my invention I form the concrete by mixing cement with sand and gravel or other suitable [materials] *material* to form a [suitable] plastic [composition] *compound,* using about the following proportions: One part, by measure, of cement; one part, by measure, of sand, and from three to six parts, by measure, of gravel, [using] *with* sufficient water to [make] *render* the mixture plastic; but I do not confine myself to any *definite* proportions *or materials* for making the concrete composition. While the mass is plastic I lay or spread the same [upon] *on* the foundation or bed of the pavement, either in molds or between movable joists of the proper thickness so as to form the edges of the concrete blocks *a a* [&c. When the block *a* has been formed I take strips of tar paper, *b,* of 720 a width equal or almost equal to the heighth of the block, and place them up against the edges of the block in such a manner that they form the joints between such blocks and the adjacent blocks], *one block being formed after the other. When the first block has set I remove the joists or partitions between it and the block next to be formed, and then I form the second block, and so on, each succeeding block being formed after the adjacent blocks have set; and, since the concrete in setting shrinks, the second block, when set, does not adhere to the first, and so on; and when the pavement is completed each block can be taken up independent of the adjoining blocks. Between the joints of the adjacent blocks are placed strips, b, of tar paper or other suitable material, in the following manner:* After completing one block, *a,* I place the tar paper *b* along the edge where the next block is to be formed, and I put the plastic composition for such next block up against the

tar-paper joint and proceed with the formation of a new block until it is completed. In this manner I proceed [in making all the blocks] until the pavement is completed, interposing tar paper between [their] *the* several joints, as described. The paper constitutes a tight, water-proof joint, but it allows the several blocks the heave separately from the effects of frost or to be raised or removed separately, whenever occasion may arise, without injury to the adjacent blocks. The paper [does not adhere] when placed against the [edge of the fully formed] block *first formed does not adhere thereto*, and therefore the joints are always free between the several blocks, although [adherence may take place between the paper and the plastic edges of the blocks which are formed after the paper joints are set up in place] *the paper may adhere to the edges of the block or blocks formed after the same has been set up in its place between the joints. In such cases, however, where cheapness is an object, the tar paper may be omitted and the block formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with*
721 *sand or dust, and the pavement is rendered sufficiently tight for many purposes, while the blocks are detached from each other and can be taken up and relaid each independent of the adjoining blocks.*

Reading in the foregoing what is inside of brackets and what is outside of brackets, omitting what is in italics, gives the text of the original specification.

The claims of the reissue are as follows:

1. A concrete pavement laid in detached blocks or sections, substantially in the manner shown and described.

2. The arrangement of tar paper or its equivalent between and joining blocks of concrete, substantially as and for the purpose set forth.

The original patent had but one claim, as follows:

The arrangement of tar paper or its equivalent between adjoining blocks of concrete, substantially as and for the purpose described.

On the 1st of March, 1875, Schillinger filed in the Patent Office a disclaimer, which, referring to the reissued patent, says—

That he has reason to believe that, through inadvertence, accident, or mistake, the specifications and claims of said letters patent are too broad, including that of which your petitioner was not the first inventor, and he therefore hereby enters his disclaimer to the following words: "and since the concrete in setting shrinks, the second block when set does not adhere to the first, and so on," and which occur near the middle of said specification, and to the following words near the end of the specification: "In such cases, however, where cheapness is an object, the tar paper may be omitted
722 and the blocks formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with sand or dust, and the pavement is rendered sufficiently tight for many purposes, while the blocks are detached from each other and can be taken up and relaid each independent of the adjoining blocks." Your petitioner hereby disclaims the forming of blocks from plastic material without interposing anything between their joints while in the process of formation.

This reissued patent was under consideration by the circuit court for the southern district of New York in February, 1877 (Schillinger *v.* Gunther, 14 Blatchf. C. C. R., 152). The court (Shipman, J.) gave a construction to it in view of the disclaimer. The defendant's pavement in that case had a bottom layer of coarse cement, on which was laid a course of fine cement divided into blocks by a trowel run through that course while plastic. It possessed the advantage of Schillinger's invention, because any block in the upper course could be taken up without injury to the adjoining blocks. Concrete pavement having been before laid in sections without being divided into blocks, the invention of Schillinger was held to consist in dividing the pavement into blocks so that one block could be removed and repaired without injury to the rest of the pavement, the division being effected by either a permanent or a temporary interposition of something between the blocks. It was held that the effect of the disclaimer was to leave the patent to be one for a pavement wherein the blocks are formed by interposing some separating material between the joints; that to limit the pat-
723 ent to the permanent interposition of a material equivalent to tar paper would limit the actual invention; that using the trowel accomplished the substantial results of the invention in substantially the same way devised by Schillinger; that the only difference in result was that the defendant's method left an open joint; that having a tight joint was not a material part of Schillinger's invention, and that the mode of operation involved in using the trowel was within the first claim of the reissue as it stood after the disclaimer.

In the same suit in August, 1879, the same court (Blatchford, J., 17 Blatchf. C. C. R., 66) held that the disclaimer took out of the first claim of the reissue only so much thereof as claimed a concrete pavement made of plastic material laid in detached blocks without interposing anything between their joints in the process of formation, leaving the claim to be one for such a pavement laid in detached blocks, when free joints are made between the blocks by interposing tar paper or its equivalent.

In California Artificial Stone Paving Co. *v.* Perine (20 Off. Gaz., 813), in May, 1881, in the circuit court for the district of California (Sawyer, J.), the defendant's pavement was made by cutting the lower course into sections with a trowel and doing the same with the upper course, the upper joint being directly over the lower joint. Into the open joint in each case was loosely put some of the partially set material from the top of the laid course, answering the purpose of tar
724 paper, and leaving pavement weaker along the joint than in any other place. This was held to be an infringement.

In the present case it is agreed that the defendant's concrete pavement was constructed as follows:

"The foundation floor, being prepared, had strips or scantlings of wood, 2 x 4, of sufficient length for the required section, placed in position about 2½ feet out from the coping and parallel therewith. A composition composed of sand, gravel, and cement, made plastic with water, was then spread within the mold formed by the afore-

said scantling and rammed down so to come within ½ inch of the scantling. Then a finer course, composed of fine sand and Portland cement, about half and half, made plastic with water, was floated over the coarse material and smoothed over or struck off with a straight edge. The block or section was then allowed to set. After becoming sufficiently hardened the scantling was removed from the outer edge of the block to about the same distance and parallel with the outer edge of the completed block, and the second block or section formed of coarse material, the same as the first, after which a cutting trowel was drawn across and through the coarse material, along the line of the completed block, and the fine upper finishing course poured in the mold on top of the lower coarse material and struck off and floated with a straight edge, as in the first block. A straight edge was then applied between the two blocks or sections over the timber line and a cutting trowel drawn through the upper course of fine material over the cut in the coarse material. The edges of the two sections along the cut made by the trowel were then smoothed down with the float or trowel, and the remaining blocks or sections of pavement were formed consecutively in the same way. No tar paper was placed between the blocks."

725 The only difference between this pavement and that in the Gunther case appears to be that in this case there is an open cut made by a trowel entirely through both coarses, the line of the cut in the upper course being directly over the line of the cut in the lower course. In the Gunther case the trowel cut was only through the upper course. It is not stated, in the admission in the record as to the mode of the construction of the defendant's pavement in the present case, that any of the material from the top of the upper course was put loosely into the joint, as in the Perine case, or that the joint was a tight joint or other than an open joint; yet, on the cross-examination of the plaintiff's expert, it is proved by the defendant that its pavement is used as a floor in a malt house for the storage of malt during the process of malting, and that it is necessary that such a floor should have tight joints. This is confusing, and it is not clear exactly what is meant by the statement, in the admission, that after the cut was made by the trowel through the upper course the edges of the two sections along the cut were smoothed down with a float or a trowel. If this means that the material from the surface adjoining each edge of the cut was scraped into the cut loosely and smoothed over the top of the cut so as to leave a plain surface over the cut, then, by the setting of the material in the cut, the joint was made in a degree a tight joint, and the arrangement was the same in character as the Perine pavement. In such case there would be a comparatively tight joint made by a substance permanently interposed, yet allowing

726 the block to be substantially free, and there would be an infringement of the claim of the original patent; but, independently of this, under a proper construction of the claim of the original patent and the second claim of the reissue, the interposition of the trowel, effecting the object which it accomplishes, although it

is interposed only temporarily and is not left in permanently, is an equivalent for the tar paper, even though the joint be left open after the trowel is removed and be not made tight. It may be an advantage to have a tight joint and at the same time a free joint, such as tar paper produces, but the substance of Schillinger's invention is availed of without having the joint tight, if it be free. The plaintiff's expert testifies that the defendant's pavement is a concrete pavement formed in blocks or sections directly on the foundation on which it is to be used, the separation of the blocks being effected by the introduction of the trowel, forming a joint along the line of separation, the joint controlling the cracking of the pavement and allowing one block to be removed without material injury to the adjacent blocks. This evidence is not contradicted. The second claim of the reissue has, therefore, been infringed if Schillinger was the first inventor of what it covers.

It is contended that the reissued patent is invalid, because it discards the water-tight feature resulting from the use of tar paper, set forth in the original patent; that, unless the paper or its
727 equivalent in producing a water-tight joint is permanently interposed in the joints between the blocks, the invention set forth in the original patent is not practiced, and that a concrete pavement with a cut or open joint is not suggested in the original patent. These views are met by the considerations before suggested, and, to whatever extent the reissue might be held invalid in regard to a pavement not covered by its second claim, it was decided by the Supreme Court, at its last term, in Gage *v.* Herring, that the invalidity of a claim in a reissue does not impair the validity of a claim in the original patent which is repeated and separately stated in the reissued patent. That is the present case, and it is unnecessary to determine whether the first claim of the reissue as amended by the disclaimer amounts to a claim for anything more than is covered by the second claim of the reissue, or whether such first claim is invalid in any degree. It is not clear that the reissue, as left by the disclaimer, embraces anything of which Schillinger was not the first inventor.

On the question of novelty the defendant has introduced the following British patents: No. 7489, of 1837, to Claridge; No. 350, of 1852, to Chesnean; No. 2659, of 1855, to Coignet; No. 771, of 1856, to de la Haichois; No. 7991, of 1839, to D'Harcourt, and No. 9737, of 1843, to Austin; and the following United States patents: No. 56563, July 24th, 1866, to Huestis, and No. 5475, March 14th, 1848, to Russ. No testimony is introduced by the defendant to point
728 out wherein any of these patents are supposed to bear on the invention of Schillinger; but the plaintiff has produced evidence to show that none of them anticipate his invention. The Claridge pavement is not a concrete pavement and is not formed in detachable blocks. The Chesnean pavement is formed of a compound which is not such a concrete as that of Schilinger. It is not composed of blocks made detachable to control the line of cracking, but sections of the pavement are set in frames and removably inserted in the surrounding pavement, so as to allow access to gas and

water pipes. In the Coignet patent there is not shown a concrete pavement made in detachable blocks in the manner described in Schillinger's patent. In the de la Haichois patent there is no pavement formed in detachable blocks by joints. In the D'Harcourt patent there is nothing to indicate that one section can be removed without disturbing the adjacent sections. In the Austin patent the pavement is made of wooden blocks, with intervals of an inch and a half in width filled with cement or concrete. The Huestis patent does not show a wearing surface of concrete or a concrete pavement formed in detachable blocks by joints. The Russ patent shows a concrete foundation for a stone pavement without joints and having removable panels, consisting of frames filled with concrete, to be lifted out to give access to water pipes.

It is further contended that as plain concrete pavements formed in blocks existed before there was no patentable invention in
729 making a joint in them. The defect in such pavements is clearly pointed out in the original patent and repeated in the reissue, that where there are no free joints between the blocks they will not heave separately from the effects of frost and cannot be raised or removed separately, without injury to adjacent blocks. No one remedied this defect before Schillinger. His invention was simple, valuable, and patentable.

The pavement laid down by Brewster at Syracuse in 1841 had no free joints.

Reference is made to the testimony introduced from the case of Schillinger *v.* The Phillip Best Brewing Company, in the eastern district of Wisconsin. The testimony was taken in November, 1882. So far as it refers to prior use in Germany, not shown in a patent or printed publication, it was duly objected to in this case and must be excluded. As to the cement malt floor which Row laid in Baltimore twenty-five years ago, he shows that it was not made in sections detachable by free joints. The testimony of Botzler as to a prior malt floor laid by him in Chicago is too indefinite to amount to sufficient evidence to defeat a patent.

The plaintiff is entitled to a decree on the second claim of the reissue for an account of profits and damages and a perpetual injunction with costs.

Duell & Hey, for the plaintiff; John L. King, for the defendant.

730 UNITED STATES OF AMERICA, } *ss:*
Northern District of New York, }

CIRCUIT COURT CLERK'S OFFICE.

I, Wm. S. Doolittle, clerk of said court, do hereby certify that I have compared the annexed copy of decision — Schillinger *vs.* Greenway Brewing Company and the endorsements thereupon with the original now on file in this office, and that the same is a correct transcript therefrom and of the whole of said original.

In testimony whereof I have caused the seal of the said court to be affixed, at the city of Utica, in the said district, this 12th day of July, A. D. 1883.

[L. S.] W. S. DOOLITTLE, *Clerk.*

731 United States Circuit Court, Northern District of New York.
In Equity.

JOHN J. SCHILLINGER
against
THE GREENWAY BREWING COMPANY.

SIR: You will please take notice that application will be made before the Hon. Samuel Blatchford for a decree herein, at his chambers, in the city of Newport, R. I., on Monday, August 6th, 1883. You are herewith served with a copy of the proposed decree.

Yours, &c., DUELL & HEY,
Sol'rs for Compl't.

To J. L. King, Esq., sol'r for def'ts.

732 Personal service of above hereby admitted and appearance at the settlement of the decree waived.

Syracuse, Aug. 2, 1883.

JNO. L. KING,
Def't's Sol'r.

At a special term of the circuit court of the United States held in and for the northern district of New York, in the second circuit, at the United States court-house, in the city of Newport, R. I., on the 27th day of June, 1883.

Present: The Honorable Samuel Blatchford, judge.

U. S. Circuit Court, Northern District of New York.

JOHN J. SCHILLINGER
against
THE GREENWAY BREWING COMPANY.

This cause having come on to be heard on the pleadings and proofs taken herein, both oral and documentary, and having been argued by the counsel for the respective parties hereto, now, therefore, on consideration thereof, it is ordered, adjudged, and decreed as follows, to wit:

That the reissue letters patent No. 4364, for improvement
733 in concrete pavement, issued to John J. Schillinger on the 2d day of May, 1871, being the letters patent referred to in the bill of complaint herein, are good and valid in law.

That the said John J. Schillinger was the first and original inventor and discoverer of the improvement in concrete pavement, as described and claimed in said reissue letters patent No. 4364 and the specification annexed thereto, and that the complainant is the exclusive owner of said letters patent.

That the Greenway Brewing Company, defendant herein, has infringed the foregoing reissue letters patent and upon the exclusive rights of the complainant, as set forth in the bill of complaint, by making and using the improved concrete pavement, as charged in the bill of complaint.

It is further ordered, adjudged, and decreed that the complainant do recover of the defendant the profits, gains, and advantages which the said defendant has received or made or which have accrued to it from the said infringement of the reissue letters patent, as charged in the bill of complaint herein, since the 2d day of May, 1871.

It is further ordered, adjudged, and decreed that the complainant recover of the defendant his costs, charges, and disbursements in this suit, to be taxed.

It is further ordered that it be referred to Daniel F. Gott, Esq., one of the masters of this court, residing at Syracuse, N. Y., to
734 & 735 ascertain and take and state to the court an account of the number of feet or amount of concrete pavement which has been manufactured, used, or sold by the said defendant, and also the gains, profits, and advantages which it, the said defendant, has received or which have arisen or accrued to it since the 2d day of May, 1871, from infringing the said exclusive right of this complainant by such making, using, or selling of the improvement in concrete pavement patented in the reissue letters patent set forth in the bill of complaint herein.

And it is further ordered, adjudged, and decreed that the complainant, on such accounting, have the right to cause an examination of the defendant and its officers and agents *ore tenus* or otherwise, and also the production of the books, vouchers, and documents of said defendant, and that its officers, agents, and servants attend for such purpose before such master from time to time as said master shall direct.

It is further ordered, adjudged, and decreed that a perpetual injunction be issued in this suit against said defendant, restraining it, its officers, agents, and employés, from making, using, selling, or in any way disposing of any concrete pavement containing the invention or improvement described in said reissue letters patent, pursuant to prayer of the bill of complaint.

SAM'L BLATCHFORD.

735*a* Complainants' record in Schillinger *vs.* Gunther and brief of complainants' counsel in above cases, in words and figures as follows, to wit:

735*b* In the Circuit Court of the United States, Southern District of New York. In Equity.

To the honorable the judges of the circuit court of the United States for the southern district of New York:

John J. Schillinger, residing and doing business at the city of New York and a citizen of the State of New York, brings this his bill of complaint against Hermann A. Gunther and Helena Wulfing, defendants, residing at the city of New York, in said southern district of New York, and citizens of the State of New York, and now or lately doing business in the said city of New York, as your orator is informed and believes, under the name or style of "Herm. A. Gunther & Co."

And thereupon your orator complains and says, upon information and belief, that heretofore and before the 19th day of July, 1870, your orator, being then a citizen of the United States, was the first and original inventor and discoverer of a certain new and useful improvement in concrete pavements, described in letters patent dated July 19th, 1870, hereinafter mentioned, and which was not known or used by others prior to his invention thereof, and which was not, and had not been at the time of his application for letters patent therefor, as hereinafter mentioned, in public use or on sale with his consent and allowance, contrary to the provisions of the statute of the United States in such case made and provided.

That your orator, being so as aforesaid the first and original inventor and discoverer of the said improvement, and being a citizen of the United States, and being desirous to obtain an exclusive property in said invention or improvement within and for the United States, did, on the 19th day of July, 1870, upon due application therefor, and having in all things complied with the conditions and requirements of the acts of Congress in such case made and provided, obtain letters patent of the United States for said invention or improvement, in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, bearing date the said 19th day of July, 1870, and numbered 105,599, which said
735c letters patent are now remaining of record in the Patent Office of the United States, by which said letters patent there was granted and secured or intended to be granted and secured to your orator, his executors, administrators, or assigns, for the term of seventeen years from the said 19th day of July, 1870, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention or improvement described in said letters patent, and by virtue thereof your orator became and was the sole owner of all the rights and privileges granted and secured or intended to be granted and secured in and by said letters patent.

And your orator further shows unto your honors that he, having for good and lawful cause, after the issuing of the said letters patent as aforesaid, surrendered the same to the Commissioner of Patents, and having made due application therefor, and having in all things complied with the requirements and conditions of the acts of Congress in such case made and provided, did, on the 2nd day of May, 1871, obtain new letters patent, numbered 4364 of reissued letters patent, for the same invention, on a corrected specification, for the residue of the said term of seventeen years from the 19th day of July, 1870, which said reissued letters patent were issued in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents, bearing date the said 2nd day of May, 1871, and numbered 4364 of reissued letters patent, and which said reissued letters patent are now remaining of record in the Patent Office of the United States, as by said letters patent or a duly authenticated copy thereof, in court ready to be produced, will fully and at large appear.

And your orator further shows that by reason of the said reissued letters patent your orator has been ever since the issuing thereof as aforesaid and is exclusively entitled to use, exercise, and enjoy all the exclusive rights, privileges, profits, and advantages granted and secured or intended to be granted and secured in and by said reissued letters patent for and during the term of years in said reissued letters patent mentioned.

And your orator further shows unto your honors that the said invention or discovery so patented as aforesaid unto your orator is very valuable and useful to the public, and that the same has been extensively introduced into public use, and that the public have generally acquiesced in your orator's exclusive right to the same, and your orator would, but for the wrongful acts of the said defendants and others acting in concert with them, have made large gains and profits from the manufacture, use, and sale of the said invention which he has been and is now hindered from making by reason of said wrongful acts of the said defendants.

And your orator further shows unto your honors that on or about the 23rd day of December, 1870, he granted to the "Schillenger Artificial Stone Company," a corporation organized under
735*d* the laws of the State of New York, an exclusive license to use said invention under said patent No. 105,599 in the counties of New York and Westchester, in the State of New York, for the period of five years from the 17th day of December, 1870, and that on or about the 8th day of October, 1872, the said company, by an instrument in writing bearing date the 8th day of October, 1872, sold, assigned, and transferred to your orator all the right of said company in, to, or under said original letters patent and said reissued patent, and all their right to use the said patented improvement in the said counties of New York and Westchester, and also all the claims, demands, and rights of action of said company for damages which had arisen or accrued to said company against any person or persons who had infringed the same in said counties of New York or Westchester, which said instrument was duly recorded in the Patent Office of the United States in Liber Y[15], p. 383, of Transfers of Patents, on the 8th day of November, 1872, as by said instrument in writing or a duly authenticated copy thereof, together with the certificate of the recording thereof, and by said license or a copy thereof, here in court ready to be produced, will fully and at large appear.

And your orator shows that by virtue of the premises he became and now is the sole owner of and exclusively entitled in said counties of New York and Westchester to all the rights and privileges granted and secured or intended to be granted and secured in and by said letters patent reissue No. 4364 and to all damages which had accrued to said company from the infringement of said patent in said counties of New York and Westchester.

And your orator further shows unto your honors that your orator, after the grant of said reissued letters patent to him, finding that the Portland Stone Company, a corporation created and organized under and by virtue of the laws of the United States and having its

"habitat" in the District of Columbia, was infringing said letters patent, commenced a suit in equity in the supreme court of the said District of Columbia against the said Portland Stone Company to restrain it from violating and infringing the rights of your orator under said letters patent, in which said suit your orator prayed, among other things, that the said Portland Stone Company might be restrained by order and injunction from said last-mentioned court from laying or causing to be laid within the said District of Columbia the pavement described in said letters patent, a certified copy whereof was annexed to the bill of complaint in said suit and made part thereof; that the said Portland Stone Company duly appeared, by its president, in said suit and duly filed an answer therein, in which the said Portland Stone Company denied that your orator was the first and original inventor or discoverer of the improvement described in said letters patent, and that the said improvement had been made known to your orator by one Charles J. Bandman
735e in the year 1869, and that the said improvement was known to and was in use by the ancient Egyptians and Romans, and that the same had been in use since the year 1863 in all the principal cities of Germany and France, and that the same had been frequently patented in England and described in the public books and printed pamphlets of that country; that the said suit came on to be heard on bill, answer, and testimony, on or about the 30th day of December, 1871, before the said supreme court of the District of Columbia, and thereupon the said court, on the 30th day of December, 1871, decided against the said Portland Stone Company in said suit, and granted and decreed an injunction as prayed for in your orator's said bill of complaint therein, and your orator shows that a copy of a certified copy of the decree therein is hereto annexed, marked "Schedule A."

And your orator avers and claims that by the aforesaid suit in equity against the said Portland Stone Company the validity of your orator's said letters patent No. 4364 and the novelty and utility of the invention patented in and by the same are fully established and settled.

And your orator further shows unto your honors, upon information and belief, that the said defendants, Hermann A. Gunther and Helena Wülfing, well knowing the premises and the rights and privileges secured unto your orator, and in order to deprive him of the profits, benefits, and advantages which might and otherwise would have accrued to him, at the city of New York and elsewhere, and within the said southern district of New York, and without the license or permission of your orator, have, since the second day of May, 1871, and at divers times since that time, and before the commence of this suit, unlawfully and wrong-ly made or caused to be made, sold or caused to be sold, used or caused to be used, concrete pavement containing the said invention or discovery and improvements, or substantial or material parts thereof, described and patented in said reissued letters patent number 4364, the exclusive right to which is secured to your orator, as hereinbefore set forth, and which said unlawful making, use, and sale by the defendants

as aforesaid are a violation and infringement of your orator's exclusive rights and privileges under said reissued letters patent as aforesaid, and that the said defendants still continue so to do, in defiance of your orator's said rights and privileges and to your orator's great and irreparable loss and injury, and by which your orator has sustained and been put to great loss and damage, and has been and still is deprived of great gains and profits which your orator might and otherwise would have obtained and received, but which have been received and enjoyed and are being received and enjoyed by the said defendants by and through their aforesaid unlawful acts and doings; and that the said defendants have derived and received and are still deriving and receiving from such use great gains and profits, but to what amount your orator is ignorant and can-
736 not set forth, but your orator believes the same to be about the full sum of ten thousand dollars, and so charges the fact to be, and prays that the said defendants may be required to make a discovery as to their use of said invention and of all gains and profits received by them therefrom or by means thereof.

And your orator further shows unto your honors that the aforesaid using of said invention by the said defendants and their confederates, and their preparation and determination to continue the same, and the aforesaid unlawful and wrongful acts, have the effect to encourage and induce other persons to infringe and defy the letters patent as aforesaid and the aforesaid exclusive rights and privileges of your orator.

And your orator further shows unto your honors that the said defendants have been warned and requested and notified to desist and refrain from said infringement and said unlawful and wrongful acts, but that said warning and request and notice have been wholly disregarded by said defendants, and that said defendants still continue the infringement and unlawful and wrongful acts aforesaid.

And your orator prays that the said defendants may be compelled, by a decree of this honorable court, to account for and pay over unto your orator all such gains and profits as have accrued or arisen to or have been earned or received by the said defendants, and all damages your orator has sustained by reason of the said infringements by the said defendants.

And that the said defendants, Hermann A. Gunther and Helena Wülfing, their agents, attorneys, servants, and workmen, be enjoined and restrained, by the order and injunction of this court, from directly or indirectly making or causing to be made, using or causing to be used, or vending to others to be used, in any manner, any concrete pavement containing or embodying or in any way counterfeiting or imitating the said invention described and secured in said reissued letters patent so granted as aforesaid to your orator, and from infringing upon or violating the said letters patent by the manufacture, use, or sale of the said concrete pavement in any way whatever, and that the said defendants may be decreed to pay the costs of this suit, and that your orator may have such other or further

order or relief as to this honorable court shall seem meet and shall be agreeable to equity.

To the end, therefore, that the said defendants, Hermann A. Gunther and Helena Wülfing, may, if they can, show why your orator should not have the relief hereby prayed, and may, upon their several corporal oaths, true and direct and perfect answer make, according to the best of their or their agents', clerks', servants', and workmen's knowledge, remembrance, information, and belief, to the several matters hereinbefore averred and set forth as fully and particularly as if the same were here repeated paragraph by paragraph and they thereto severally and specifically interrogated—

737 May it please your honors to grant to your orator a writ of *subpœna ad respondendum*, issuing out of and under the seal of this honorable court, directed to the said defendants, Hermann A. Gunther and Helena Wülfing, commanding them and each of them, by a certain day and under a certain penalty, to be and appear in this honorable court, then and there to make answer unto this bill of complaint and to perform and abide by such order and decree herein as to this court may seem meet and agreeable to equity.

And your orator will ever pray, &c.

(Signed) JOHN J. SCHILLINGER.

J. VAN SANTVOORD,
Complainants' Solicitor and of Counsel.

UNITED STATES OF AMERICA.

SOUTHERN DISTRICT OF NEW YORK, } ss:
City and County of New York, }

John J. Schillinger, the complainant in the foregoing complaint named, being duly sworn, deposes and says that he has heard read the foregoing bill of complaint by him subscribed and knows the contents thereof, and that the same are true of his own knowledge, except as to those matters therein stated on information and belief, and as to those matters he believes it to be true; and he further deposes and says that he verily believes that the said John J. Schillinger is the first and original inventor or discoverer of the invention or improvement patented to him as set forth in said bill of complaint, and that the same has not, to the best of his knowledge, information, and belief, been in use or been described before the invention thereof by him.

(Signed) JOHN J. SCHILLINGER.

Subscribed and sworn to before me this 7th day of December, 1872.

[L. S.] (Signed) R. W. TOWNSEND,
Notary Public, Residing in the City of New York.

738. SCHEDULE A.

In the Supreme Court of the District of Columbia, this 30th day of December, 1871.

JOHN J. SCHILLINGER
vs.
PORTLAND STONE COMPANY. } Equity No. 2464.

This cause coming on to be heard on bill, answer, and testimony, it is, this thirtieth day of December, A. D. 1871, by the court ordered, adjudged, and decreed that the injunction perpetually restraining defendant from laying or causing to be laid the patented pavement described in complainant's bill of complaint, prayed for in said bill of complaint, be, and the same is hereby, granted.

By the court:

A. WYLIE.

I hereby certify that the above is a true copy of the decree this day passed in the above-entitled cause.

[L. S.]

R. J. MEIGS,
Clerk of Court.
R. J. MEIGS, JR.,
Ass't Clerk.

(Replication filed in usual form.)

739 United States Circuit Court, Southern District of New York.
In Equity.

JOHN J. SCHILLINGER
vs.
HERMANN A. GUNTHER and HELENA WULFING.

Depositions of witnesses taken for final hearing on the part of the complainant by R. E. Stillwell, examiner.

TUESDAY, *May* 20, 1873.

Present: J. Van Santvoord, counsel for complainant; A. V. Briesen, counsel for defendants.

Counsel for complainant offers in evidence letters patent of the United States reissue No. 4364, bearing date May 2, 1871, granted to complainant, John J. Schillinger, for an improvement in concrete pavements, being a reissue of original letters patent granted to him July 19, 1870, No. 105,599, and the same is marked "Complainant's Exhibit A, R. E. S., examiner," and by consent of counsel for both parties a certified copy of said reissued patent is substituted as such exhibit.

Counsel for complainant also offers in evidence an exemplified copy of the pleadings in a certain cause brought by said complain-

ant in the supreme court of the District of Columbia against the Portland Stone Co. and of the decree granted therein on final hearing, and the same is marked "Complainant's Exhibit B, R. E. S., examiner."

Also the certified copy of the same decree, a copy of which certified copy is annexed to the bill of complaint herein and called "Schedule A," and the same is marked "Complainant's Exhibit C, R. E. S., examiner."

740 A. FABER DU FAUR, being duly sworn as a witness on the part of complainant, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. A. Faber du Faur; I am 47 years of age; residence, Newark, N. J.; occupation, engineer and metallurgist; office, No. 90 Broadway, New York.

Q. 2. Have you been accustomed to act as expert in patent causes; and, if yea, for how long and to what extent?

A. I have, for the last five years, been engaged as expert in a considerable number of patent causes.

Q. 3. Have you read and examined complainant's patent reissue No. 4364, Exhibit A; and, if yea, do you understand what invention is therein described?

A. I have read and examined complainant's patent reissue No. 4364, and I believe I understand the invention described therein.

Q. 4. Please state what, as you understand it, is the invention described therein.

A. This invention refers to certain improvements in concrete pavement, and consists in a certain method of laying concrete pavement in sections on the spot, so that each section can be taken up and relaid without disturbing the adjoining sections, and so as to allow the several blocks to heave separately from the effects of frost. In forming the blocks on the ground the inventor places tar paper or its equivalent between the joints—that is to say, after some of the blocks have been formed tar paper or other suitable material is placed against the faces adjoining the new blocks to be formed before the concrete is filled in. As the tar paper or other suitable material does not adhere to the block already formed two adjoining blocks are prevented from firmly uniting, leaving them free to yield to the action of frost. After the blocks have been formed in this way the tar paper or other suitable material might be taken out, in which case the joints would soon fill up with sand or dust, still leaving the blocks detached from each other.

Q. 5. Do you know the defendant, Hermann A. Gunther, here present? And, if you do, please state when and under what circumstances you first met him.

A. To the best of my knowledge I saw the defendant, Hermann A. Gunther, for the first time on October 30, 1871, in 57th street, in this city, where he had men employed putting down pavement on the sidewalk. I fix the date from a memorandum on a circular which he gave to me at that time.

741 Q. 6. Will you please produce that circular, to be made an exhibit in this cause?

A. I produce it.

Counsel for complainant offers in evidence the circular produced by the witness, and it is marked "Complainant's Exhibit D, R. E. S., Ex'r."

Q. 7. What memorandum on the circular, Exhibit D, do you refer to? And state who made such memorandum, if you know.

A. I refer to a memorandum in pencil made by me on the back of the circular at that time; it reads as follows: "40 cents per foot, Oct. 30, 1871; about 9 a. m. spoke to Mr. Gunther; received circular from him."

Q. 8. Did you at that time have a conversation with Mr. Gunther concerning the pavement of which you say he had men putting down the same on the sidewalk? If yea, please state what that conversation was, as near as you can recollect it.

A. I had a conversation with Mr. Gunther, but I do not now recollect the details of the same. I know that he gave me the price of the pavement, that he spoke about Mr. Schillinger having sent people there to examine it, and that he was working under a patent of his own.

Q. 9. Please describe the pavement which you say he had men putting down.

A. The lower part of the pavement consisted of concrete blocks with tin-foil interposed between the joints. The top dressing was made in smaller divisions than the bottom part and formed with open joints, which were afterwards filled out with some substance, asphaltum, I believe, but I would not swear as to its being asphaltum.

Q. 10. How extensive was the pavement which you saw in 57th street on the occasion you have mentioned?

A. After the length of time which has elapsed since I saw it I could not give the exact extent. It formed a very broad sidewalk, and to the best of my recollection for the width of one lot in 57th street.

Q. 11. State how the pavement in 57th street, of which you have said that Mr. Gunther had men employed putting it down, compares in respect to similarity or dissimilarity with the invention described in complainant's patent, Exhibit A, and give your reasons for any opinion you may express.

A. The pavement referred to laid down in 57th street is substantially the same as the invention described in complainant's patent, tin-foil being merely substituted for tar paper, and this I consider suitable material or the equivalent for the tar paper referred to in complainant's patent. The tin-foil is arranged between ad-

742 joining blocks of concrete laid in detached blocks or sections; the top dressing is also laid in detached blocks or sections, formed with open joints, which are afterwards filled up.

Q. 12. State whether or not the filling placed between the sections of the top dressing was of such a character as to permit the several

sections to be raised or removed separately without injury to the adjacent sections or blocks.

(Objected to as leading.)

A. I am under the impression that it is; but, not having seen the pavement since the time referred to, I can't state positively whether it practically answered this purpose.

Q. 13. State in what condition the material was of which the lower part and the top dressing of the said pavement in 57th street was made, as to the consistency thereof.

A. The lower part was made of coarse material, while the upper part was made of finer material and in different colors. To the best of my recollection it did not differ in consistency from the material used for similar pavement at other places.

Q. 14. Were the several sections or blocks composed of material in a soft and plastic state or in a hard state?

(Objected to as indefinite.)

A. To the best of my recollection the lower part was already set, and only the top dressing being put on while I was there, strips of flat iron being interposed between the blocks already formed and those to be formed, part of the top dressing being, of course, already hardened, while that part which was being put on was still soft.

Q. 15. Do you know who composes the "Co." in the firm "Hermann A. Gunther & Co.," named in the circular, Exhibit D?

A. I do not.

Cross-examined by A. V. BRIESEN, Esq., counsel for defendants:

X Q. 16. Have you examined the letters patent No. 105,599, of July 19, 1870, of which the patent, Exhibit A, is a reissue?

Objected to because that patent is not in evidence and the question is not a proper one on cross-examination of this witness, no such patent having been enquired about or replied to by the witness on his direct examination.

A. I have seen it, but I could not say that I have carefully examined it.

X Q. 17. Will you please point out in the patent, Exhibit A, the passage or passages which you have interpreted "tar paper or other suitable material."

743 A. I quote from the specification, "between the joints of the adjacent blocks are placed strips, *b*, of tar paper or other suitable material, in the following manner."

Counsel for defendants offers in evidence a certified copy of letters patent No. 105,599, issued to John J. Schillinger on the 19th of July, 1870, and the same is marked "Defendants' Exhibit No. 1, R. E. S., Ex'r."

Counsel for complainant objects to and protests against the offering in evidence on the part of the defendants of said certified copy,

on the ground that it is an attempt to introduce in the cross-examination of this witness new matter, which has not been inquired of nor testified about on his direct examination, and gives notice to counsel for defendant that the court on the hearing in this cause or at other suitable time will be moved to strike out said offer and to disregard all questions and answers concerning said paper which may be asked or given in the cross-examination of this witness.

X Q. 18. Please examine the description of patent marked Exhibit 1, and state whether you can find therein the expression or words "tar paper or other suitable material."

Same objection.

A. I do not find the expression "tar paper or other suitable material," but I do find the expression "tar paper or its equivalent," and the equivalent to be such must be suitable.

Counsel for defendants objects to the latter part of answer as volunteered and not responsive to the question.

X Q. 19. Please quote from the reissued patent, Exhibit A, the passage stating, as you have interpreted it, that the tar paper or other suitable material might be taken out after the blocks had been formed.

A. I quote: "In such cases, however, where cheapness is an object the tar paper may be omitted and the blocks formed without interposing anything between their joints, as previously described. In this latter case the joints soon fill up with sand or dust and the pavement is rendered sufficiently tight for many purposes, while the blocks are detached from each other and can be taken up and relaid, each independent of the adjoining blocks."

X Q. 20. Do you then understand that omitting tar paper and forming the blocks without interposing anything between their joints is the same as removing tar paper from between the blocks after they have been formed with it?

A. I do, for the following reasons: The first part of the quotation in my last answer leaves it indefinite whether the omission
744 refers to the finished article or to the process of producing the article, but I understand it to refer to the finished article because the second part of the quotation speaks of joints which soon fill up and of blocks detached from each other, while if concrete were placed against the newly formed blocks it would adhere and not be apt to leave such joints as spoken of, even if the concrete should shrink in setting.

X Q. 21. You say that you have been an expert in patent causes during the last five years. Was that in a country where the English language was used?

A. It was in the United States.

X Q. 22. And you consider the verbs "to omit" and "to take out" to be synonyms, do you?

A. I do not.

X Q. 23. You have also stated that you are an engineer. Are you not, then, acquainted with the fact that when a fresh surface of

newly mixed concrete or cement is placed in contact with cement or concrete that has already set adhesion of the two surfaces will not and never — take place?

A. I do not consider this altogether correct, particularly where the surfaces are rough, and the fresh material may by ramming be forced into spaces in the material that is set or partially set.

X Q. 24. Is it your opinion, then, that the surfaces are rough, though the mass has been formed in molds, as described in the patent, Exhibit A?

A. The surfaces that I have seen were not smooth, owing to the coarseness of the material employed.

X Q. 25. What material?

A. The materials described in Exhibit A, "one part, by measure, of cement; one part, by measure, of sand, and from three to six parts, by measure, of gravel, with sufficient water to render the mixture plastic."

X Q. 26. Where have you seen such material with rough surfaces?

A. I have seen such pavement laid near the city hall in this city; also in Harlem; I believe it was 124th street; also near Fifth avenue, near 25th street, at the Worth monument, at both of which latter places they appeared to be of the opinion that the fresh concrete would adhere to that already set, to prevent which they painted the surfaces with oil or similar substances.

Latter part of answer objected to by defendants' counsel as hearsay.

X Q. 27. The surface of the chequered cement pavement in the city-hall park in this city appears to be quite smooth, does it not?

A. The surfaces I was referring to are not now exposed. The top surface, which can now be seen, received an extra top dressing so as to make it smoother.

745 X Q. 28. What do you mean by top dressing—a lining of material different from that of the base?

A. A finer material.

X Q. 29. Do you find any reference to or mention of such top dressing of finer materials in complainant's reissued patent, Exhibit A?

A. Not more than the following: "But I do not confine myself to any definite proportions or materials for making the concrete composition."

X Q. 30. Then, if the blocks were entirely formed of the fine material which you observed on the surface of the pavement in the city-hall park, would their edges, if formed against moulds in the usual manner, still be rough, in your opinion?

A. They would be smoother in proportion to the fineness of the material, but they would not be perfectly smooth surfaces.

X Q. 31. Why not, if the moulds are smooth and the material is rammed as you have described?

A. I have never seen a perfectly smooth surface made by such a process. I have myself done a good deal of moulding with fine sand where the surfaces would never come out perfectly smooth.

X Q. 32. Do you know that the finest castings of metal are formed in and derive their shape from sand?

A. They are formed in sand, but after the pattern has been taken out for the first time the sand is dusted either by fine charcoal dust or by charcoal dust and plumbago, or sometimes with lime dust, the pattern then replaced, and the mould tightly rammed again. Sometimes also the sand mould receives a wash of plumbago and is then dried.

Adjourned to 21st inst., at 11 a. m.

WEDNESDAY, *May* 21*st*, 1873—11 a. m.

Present: Counsel as before.

Continuation of the cross-examination of A. FABER DU FAUR:

X Q. 33. Do you not know that most iron castings are made in sand direct without dusting the sand with charcoal, plumbago, lime dust, or other matter?

A. Ordinary castings, but not the finest castings.

X Q. 34. Is the surface of such castings made in sand about as smooth as the surface of the chequered pavement in the city hall park?

Objected to as irrelevant and immaterial.

A. Generally smoother than the surfaces of the sides of the
746 blocks. The top surface of the pavement near the city hall may have at first, perhaps, been smoother than rough castings, owing to the method of finishing it off.

X Q. 35. According to your interpretation of the reissued patent, Exhibit A, the same contains mention that the tar paper might be taken out after the blocks had been formed. Can you, as an engineer and mechanical expert, indicate a practicable method for so removing the tar paper from between two pressed blocks of cement, to one of which it adheres, as described in said patent?

A. I did not state that the patent contained mention that the paper might be taken out. I only stated that I so understood the meaning of omitting the tar paper in the finished article. The tar paper must not necessarily adhere to the blocks formed against it, and by loosening it at the proper time I cannot see why it could not be taken out or why an equivalent material could not be removed, leaving, after removal, blocks without anything interposed between their joints.

X Q. 36. Which would be the proper time for so loosening the paper?

A. A practical workman would soon find this out. It would be after the concrete has stiffness enough to preserve its shape without being too much hardened, although with stiffer materials of a proper form it may be done even later.

X Q. 37. How do you think could the person who was to withdraw the paper from between the blocks take hold of it?

A. He would have to allow the tar paper to project, folding it

over when forming the block, using a straight edge for finishing, with a proper allowance for the tar paper folded over.

X Q. 38. Does the diagram of Exhibit A so represent the tar paper projecting or folded?

A. It does not.

X Q. 39. If the tar paper were to be removed from between two blocks before the same had become entirely hardened would not, in your opinion, the moist tar paper be inevitably torn during such attempted removal?

A. I am not aware that tar paper absorbs moisture very fast, but I do not deny that there is a possibility that tar paper might be torn in pulling it out.

X Q. 40. Did you ever examine the condition of the tar paper while the same was placed in contact with the moist surfaces of concrete blocks?

A. I have examined the tar paper which they used at Harlem, I believe at 124th street, where it was placed on the top of the blocks in finishing it off and in contact with the wet cement.

X Q. 41. Was only one side of the paper in contact with the cement?

A. Not exactly, because there was cement sometimes on the straight edge which passed over the upper side of the paper.

747 X Q. 42. You mean a grain or two of cement might have dropped upon the paper, do you?

A. On the contrary, a considerable quantity, as in finishing off the surface there is always some of the material moved about by the straight edge, and would necessarily come in contact with the top surface of the tar paper.

X Q. 43. In what condition did you find such paper?

A. Apparently in good condition, in which it was used over and over again.

X Q. 44. Was it moist?

A. I didn't make a chemical test of it, but it did not appear to have lost its strength.

X Q. 45. Can you only ascertain whether or not paper is moist by making a chemical test?

A. I can ascertain with ordinary paper without chemical test, but with tar paper it is different.

X Q. 46. Did you touch some of that paper with your fingers?

A. I did.

X Q. 47. Did you ascertain whether the cement beneath the paper was moist?

A. I saw that near the edge it came in contact with wet cement on both sides.

X Q. 48. When you touched the paper which side of it did you touch?

A. I believe that I touched both sides, but I am not willing to swear to such details, as more than a year has elapsed since I have been to the place in question, and as I had not made it a particular object to examine into the condition of that tar paper.

X Q. 49. Was the paper moist when you touched it?

A. I can't state positively; all I can recollect is that the edge of the paper appeared to be in good condition and was repeatedly used.

X Q. 50. What induced you to speak to Mr. Gunther in October, 1871?

A. I went there to examine the pavement at the request of Mr. Schillinger, and I wanted to find out by whom the pavement was made.

X Q. 51. Did you tell Mr. Gunther that you went there at the request of Mr. Schillinger?

A. I don't believe I did.

X Q. 52. What did you represent yourself to be?

A. I made inquiries about the pavement, and I am under the impression that I gave Mr. Gunther my card, but I am not certain about this.

X Q. 53. Did you intimate to Mr. Gunther that you were likely to employ him to lay pavements in front of your house?

A. I did not, to the best of my recollection. I asked him
748 about the cost of it, but I certainly did not say that I would be likely to employ him.

X Q. 54. What pretext did you make for asking the cost of his pavement?

A. I don't recollect that I made any pretext. It is such a long time now since the conversation occurred that I could not positively state what I said, and I can only say that it is a rule with me never to say anything in such case, or in any case, but what is strictly true.

X Q. 55. Is it strictly true that the reissued patent, Exhibit A, describes that the tar paper or other suitable material might be taken out after the blocks have been formed?

A. I gave this as my construction of the specification and have given my reasons for such construction. A man may be mistaken in his opinion without being untruthful, but when referring to my conversation with Mr. Gunther I was referring to statements of facts and not of opinion. I may perhaps have said that I should like to have such pavement or similar pavement in front of the house where I live, and if I should have stated that it was true at the time and is still true. I have several times inquired about the price; have also asked Mr. Schillinger about it.

X Q. 56. You have stated that in the pavement which you saw in 57th street, under process of construction, the top dressing was made in smaller divisions than the bottom part. Please explain in what respect the top dressing was in smaller divisions.

A. To the best of my recollection, the squares formed by the joints were smaller for the top dressing than for the lower part of the pavement.

X Q. 57. Between what avenues was that pavement in 57th street?

A. As well as I can recollect, it was the northwest corner of 57th street and Lexington avenue, but I was at another place also in 57th St., between Fifth and Madison avenues, on the north side,

near Madison, where there was similar pavement, and I should prefer to examine the places again before stating under oath at which one of the two Mr. Gunther was at work, although I firmly believe that it was at the corner of 57th street and Lexington avenue.

X Q. 58. Did you see both these places in 57th street on the same day or at different times?

A. On the same day.

X Q 59. Were the pavements on both places at that time under process of construction?

A. They were not.

X Q. 60. Which one was and which was not?

A. I have already stated that I believe it was the one the corner of Lexington avenue, and which was in the processs of construction.

749 X Q. 61. Have you any reason to believe that the other pavement near Madison avenue was also laid by Mr. Gunther?

A. Only from information.

X Q. 62. Who gave you such information?

A. I believe Mr. Schillinger.

X Q. 63. Was the pavement which you saw under process of construction and under the direction of Mr. Gunther on the sidewalk of the street or in the area of a house, or where was it?

A. It was on the sidewalk of the street, and I believe also in the area, but I am not positive about that now.

X Q. 64. Do you solemnly swear that on the pavement which you saw under process of construction in 57th street, New York, on the 30th of October, 1871, and under supervision of Mr. H. A. Gunther the upper dressing was made in smaller divisions than the lower part?

A. I am under the impression that this was the case, but I have no notes made at the time.

X Q. 65. Please state your knowledge as to this matter and not your impressions.

A. My recollection is that the divisions were smaller. I did not make this a special point.

X Q. 66. How much smaller were they?

A. I do not recollect that now.

X Q. 67. If the upper divisions were smaller than the lower the joints of the two divisions were necessarily out of line, were they not?

A. Not necessarily, if four squares should be formed corresponding to one square below.

X Q. 68. Were they so formed, with four small squares above the large one?

A. I have no positive recollection, but I am under the impression that the upper and lower joints did not come together.

X Q. 69. You will, of course, swear that the only pavement at which you have seen Mr. Gunther was the one having the top dressing made in smaller divisions than the bottom part, will you not?

A. I have only seen Mr. Gunther at one pavement, and, to the best of my recollection, there the top dressing was in smaller divisions than the bottom part. I wish to say in reference to my answer to X Q. 63 that I saw considerable surface of the pavement in front of the house, but I don't recollect the exact dividing line between the area and the sidewalk. I know that I stood with Mr. Gunther in front of the pavement that was being laid.

Adjourned to 23d inst., at 11 a. m.

750 FRIDAY, *May* 23*d*, 1873.

Present: Counsel as before.

Continuation of the cross-examination of A. FABER DU FAUR:

X Q. 70. In answer to Q. 11 you have stated that you consider tin-foil an equivalent of tar paper. What reason do you assign for such an opinion?

A. I consider it an equivalent because I am of the opinion that it will answer the purpose of so forming the joints as to allow the blocks to be raised separately without affecting the blocks adjacent thereto.

X Q. 71. Any substance, therefore, that will allow the blocks to be raised separately without affecting the blocks adjacent thereto is an equivalent, in your opinion, to the tar paper, is it?

A. When used in the manner described in reissue No. 4364—that is to say, when thin strips or thin layers of such material are placed along the edge where the next block is to be formed, the plastic composition then being put against the joint thus protected.

X Q. 72. Do you find in the reissued patent, Exhibit A, anything stating that the tar paper should be thin or in thin layers or that its equivalent should be thin or in thin layers?

A. I do not find this expression.

X Q. 73. Would, in your opinion, the strips of flat iron which, as you say in answer to Q. 14, were interposed between the blocks be equivalents of the tar paper?

A. They would, because they produce the same result of separating the joints in a substantially similar manner, although iron strips have additional properties not found in tar paper.

X Q. 74. If the iron strips were omitted would they also be equivalents of the tar paper of which the reissued patent, Exhibit A, describes that it may be omitted?

A. If the iron strips are omitted in the finished article they would be equivalents, provided they had been used in the production of the finished article in the manner described in the patent.

X Q. 75. Does not the reissued patent, Exhibit A, in the clause that speaks of the omission of the tar paper, also describe that the blocks may be formed without interposing anything between their joints?

A. It does.

X Q. 76. Now, suppose the blocks were formed without interposing iron plates between their joints, would, in your opinion, the

iron plates thus omitted be equivalents of the tar paper also omitted?

A. If the expression "were formed" refers to the finished condition of the article the iron plates, although omitted, may have been used as equivalents in the preparation of the article. If, however, the expression refers to the process of making, then, of course, something that had not been used would not be used as an equivalent.

751 X Q. 77. Do you find in that clause of said reissued patent which describes that the tar paper may be omitted and the blocks formed without interposing anything between their joints the words "finished article" or "finished blocks" or "completed article" or their synonyms? Please answer according to the facts you find, and not give your opinion.

A. I do not.

X Q. 78. Suppose the iron plates were first put in position and the two blocks of cement thereafter formed on the opposite sides of such plate, would, in your opinion, the iron plate be the equivalent of the tar paper?

Counsel for complainant objects to the question as irrelevant and as calling for a construction of the patent under a supposition which may involve a departure from the process described in the patent.

A. It might be an equivalent to a certain extent, but such an iron plate would have additional properties through which it could be used in the manner referred to in the question, while tar paper could not be used in this manner.

X Q. 79. Then the metal plate, put up as described in my last question, would, by allowing the separate removal of the blocks, be an equivalent of the tar paper, though possessing advantages not found in the tar paper. Is that your opinion?

A. This involves a legal opinion, not expected from an expert, as to whether such a method would be considered as an attempt to evade the patent or not.

X Q. 80. I am not asking you about any attempt to evade the patent, but, as you, in answer to Q. 11, have undertaken to express it as your opinion that tin-foil is an equivalent of tar paper, it is but right that you should declare what other substances or things are equivalents of tar paper in your opinion. With this explanation I repeat X Q. 79.

Counsel for complainant objects to the question and to the explanation for the reason that the matter thus enquired of is not the subject of cross-examination, and no such construction has been testified to in the direct examination, and the enquiry is therefore irrelevant and improper.

A. Tin-foil cannot be used in the manner suggested in Q. 79, and I called it an equivalent of tar paper, but I must state again that I do not know whether a metal plate used in manner described in the Q. 78, producing a concrete pavement laid in detached blocks or sections, but not exactly in the manner described in complain-

ant's patent, must be considered an equivalent, because this would require a legal opinion as to the construction of the patent.

X Q. 81. Does the first clause of claim in the reissued patent, Exhibit A, describe the pavement or the mode of making it?

752 Objected to because the question manifestly calls for a construction of the claim, which is only the subject of judicial interpretation and not within the province of examination of witnesses.

Counsel for defendants replies to the above objection by stating that the X Q. 81 does not call for a construction, but in order to make this fact apparent to complainant's counsel he will amend the question by adding thereto as follows:

Please answer as to the facts you find and not as to your opinion.

Objection continued.

A. The fact is that it describes "a concrete pavement laid in detached blocks or sections, substantially in the manner shown and described." Whether the words "substantially in the manner shown and described" refer to the pavement or to the mode of making it or to either I consider a matter of opinion.

X Q. 82. Would air interposed between two blocks of cement so as to permit their separate removal be, in your opinion, an equivalent of tar paper?

A. I have not seen air used and I can't see any way of using it in the manner described in the patent so as to be an equivalent.

X Q. 83. Could not after a block of cement has been placed in position another block be formed and placed at such a distance as to leave a layer of air between the two blocks and thereby permit their subsequent separate removal?

A. Certainly.

X Q. 84. Would not in such case the air between the blocks answer the purpose of so forming the joints as to allow the blocks to be raised separately without affecting the adjacent blocks?

A. The air would not assist in so forming the joints. Other means would have to be employed in the formation of the blocks, the removal of which means would leave nothing but air between the joints.

X Q. 85. Then you give it as your opinion under oath and as a mechanical expert that blocks of concrete or cement could not be formed with an air space between them without the previous use of other means between such blocks, do you?

A. I didn't say that. It wants something besides air to form a block against, and this, with great care, may be done against the block previously formed, leaving a very small air space after shrinkage, but for ordinary work I think this would not answer, because it would be very difficult to get good joints.

X Q. 86. Would in such case the air or the great care be the equivalent of tar paper?

Objected to as calling for a legal opinion.

A. Neither of the two, no substance being used between the
753 joints, the air space being simply the result of the operation and not the means employed.

X Q. 87. In answer to Q. 13 you stated that the material used in the cement pavement which you saw in 57th street under process of construction by Mr. Gunther "did not differ in consistency from the material used for similar pavement at other places." Do you mean the material of the upper or of the lower stratum of such pavement in 57th street?

A. To the best of my recollection none of the material for the lower layer was laid in my presence, but from the appearance of the article I am satisfied that it was substantially similar to what is used by others. The material used for the upper part appeared to be substantially of the same consistency as what I saw used at other places. I state again that it is now about 19 months since I examined this pavement and that I only examined in regard to the mode of forming the joints, as I did not consider the composition of the material of great importance.

X Q. 88. If the lower layer was already set when you saw it how could you ascertain that tin-foil was interposed between the blocks?

A. I saw the tin-foil sticking out and tore off some of it, which I showed to Mr. Van Santvoord and to Mr. Schillinger; also to Mr. Hauff. I have lost it and I don't know what has become of it.

X Q. 89. Have you before October, 1871, been in the employ of Mr. Schillinger, the complainant in this case.

A. I have not, with the exception that I believe that I acted as interpreter in an interference case for him.

X Q. 90. Did Mr. Gunther in the conversation with you tell you that he was working under a patent of his own in laying the pavement which you saw him lay?

A. He spoke about a patent, but I can't recollect his exact words. I have again examined the pavement yesterday, and I find it marked on the sidewalk where there are large squares, "Herm. A. Gunther, pat. Oct. 3, 1871," at least I believe it was the 3d Oct. I may add in this connection that the small squares are in the area. I do not recollect whether he stated that he was there working under his patent.

X Q. 91. Do you recollect whether he stated that he was working under a patent of his own?

A. I am under the impression that he did.

X Q. 92. But you are not sure, are you?

A. I would not like to say positively under oath that he did say so.

X Q. 93. In answer to Q. 8 you did say positively and under oath, "I know that he gave me the price of the pavement;" "that he spoke about Mr. Schillinger having sent people here to examine, and that he was working under a patent of his own." Now you say that you would not say positively under oath that he did say so. Did you not consider yourself under oath when answering Q. 8?

754 A. I did consider myself under oath, reserving myself the right to have the testimony read over again before signing it.

I did not mean to say positively that Mr. Gunther said that he was doing the work there done under his patent, although I am under the impression that he did say so, but I am positive that he spoke about his patent.

X Q. 94. On re-examining the pavement in 57th street yesterday did you satisfy yourself at which of the two places mentioned by you you saw Mr. Gunther at work?

A. I believe now that it was in the area corner of Lexington avenue and 57th street.

X Q. 95. Did you carefully examine the area pavement yesterday and satisfy yourself that the upper stratum was laid in smaller sections or blocks than the lower, or at least in smaller blocks than those composing the upper stratum of the adjoining sidewalk?

A. I did not go into the area, and of course could not take up the pavement; but the pavement in the area showed smaller squares than the top of the blocks on the adjoining sidewalk. In the middle part of the area there is a dark annular top.

X Q. 96. Did you, from the size of the blocks composing the sidewalk, satisfy yourself that they were not smaller than those composing the lower stratum of such sidewalk?

A. It is impossible to see that now without taking up or destroying part of the pavement. According to my recollection the lower part of the blocks which I saw with the tin-foil between the joints were about the size of the blocks now on the surface of the sidewalk.

X Q. 97. This makes it clear that the pavement you saw under process of construction must have been the one in the area, does it not?

A. I am under the impression that it is so, but it is also possible that it may have been on the sidewalk, and perhaps so arranged that the joints of the top dressing do not correspond to the lower joints.

X Q. 98. Was such the case in the pavement you saw under process of construction?

A. I believe I already stated that I was not quite sure whether the joints corresponded or not.

X Q. 99. Did you not notice yesterday that the blocks composing the upper layer in the area were the same size as those composing the pavement, but grooved on the surface to produce a smaller pattern to the eye?

A. I did not go into the area, and only saw the smaller design no the top and the dark rings.

X Q. 100. You would certainly have noticed this if done or partly done while you saw the pavement under course of construction, would you not?

A. I certainly would, and I am sure that at that time I
755 knew all about it, but it has escaped my memory during the nineteen months elapsed since then, and I only recollect what I then considered to be important.

X Q. 101. In answer to Q. 9 you swear that in the pavement you saw under process of construction the top dressing was made in smaller divisions than the bottom part. If it should appear that in

the area pavement mentioned by you the top dressing was not made in smaller divisions than the bottom part it would follow that you did not see the area pavement under process of construction, would it not?

A. I believe I have fully stated that I could not positively state now which one it was, and, as far as I know, I have only stated that, to the best of my recollection, the top dressing was of a smaller design. I have not given the matter any consideration, as I did not expect to be examined about it after nineteen months, and because I know that in such patent causes respectable people generally admit what they make or use without trying to put great expense on the proof of such things.

The latter part of answer objected to by defendants' counsel as volunteered and not responsive and assuming.

Redirect:

Q. 102. You have been asked in the cross-examination about a checkered pavement in city-hall park, or near the city hall. Do you know whose pavement that is?

Objected to, it being well known that the pavement in the public parks belongs to this city.

A. It is marked Schillinger's patent, or words to that effect.

Q. 103. Do you recollect or can you state whether the pavement where you saw Mr. Gunther laying the pavement in October, 1871, at 57th street and Lexington avenue, extended in front of only one house or of more than one?

A. More than one, and I have now satisfied myself that it extends along five houses, or what I took to be five houses.

Q. 104. Did Mr. Gunther, in his conversation with you at 57th street and Lexington avenue, to which you have referred, say or give you to understand that he was aware or had notice of Mr. Schillinger's patent?

A. I am certain that he spoke about Mr. Schillinger or mentioned his name. I firmly believe that I understood him at the time to have knowledge of Schillinger's patent, but I could not possibly give the exact words of the conversation at this late date.

A. FABER DU FAUR.

Subscribed and sworn to before me this 23d day of May, 1873.

R. E. STILWELL,
Examiner, &c.

756 NEW YORK, TUESDAY, *June 3rd*, 1873.

Present: Counsel as before.

PHILIP HENRY KRAUTH, a witness called and sworn for complainant, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. Philip Henry Krauth; age, 40 years; I live in 93rd street, New York; occupation, cap manufacturer.

Q. 2. Are you in business alone or in company with any one; and, if so, with whom?

A. I am in partnership with Bancroft, of the firm of Bancroft & Krauth, 91 Prince street, New York.

Q. 3. How long has that firm been in existence?

A. Since the 1st of February, 1873.

Q. 4. State whether or not you had previously carried on business in partnership with any other person during the preceding three years or any portion thereof; and, if so, with whom.

A. With Mrs. Helena Wulfing.

Q. 5. Do you know Hermann A. Gunther, here present; and, if yea, how long have you known him?

A. I know Mr. Gunther; I have known him for four years.

Q. 6. Where does Mr. Gunther have his office of business in this city?

A. He has it at 460 Broome street.

Q. 7. State if at any time your place of business and Mr. Gunther's were in the same building or office. If so, where was that?

A. It was at 460 Broome street.

Q. 8. During what years?

A. It was—I can't tell exactly when it commenced—it was 1872 and 1871—it was 1871 and 1872. Anyhow, it was two years.

Q. 9. Under what style or name did Mr. Gunther carry on business while he was at the same number in Broome street with you?

A. The firm of Gunther & Company.

Q. 10. What business did that firm carry on?

A. Artificial stone—concrete.

Q. 11. Did you know or understand during the time you and Gunther & Co. were in Broome street who composed the firm of Gunther & Co.?

Objected to as framed to solicit hearsay evidence.

A. Well, I thought it was Mr. Gunther and Mr. or Mrs. Wulfing.

Answer objected to by counsel for defendants as hearsay or opinion.

Q. 12. State what reason you had for so thinking; give any circumstances which led you to that thought.

Same objection, and as incompetent.

757 A. Well, Mr. Wulfing—Mr. Gunther had his office there. Mr. Wulfing attended to his money matters.

Q. 13. State where in 460 Broome street, during the time you have stated, Gunther & Co. and your own firm had their offices in the same building, and state whether said offices were in different apartments or how otherwise.

A. It was in the same room where our office was.

Q. 14. Did Mr. Wulfing, while Mrs. Helena Wulfing was your partner, serve in your business in behalf of Mrs Wulfing?

All after the word "business" objected to as leading and suggestive.

A. He did.

And in answer to cross-examination the witness says as follows:

X Q. 15. How long have you been in partnership with Mrs. Wulfing?

A. I was in partnership with Mrs. Wulfing three years. In 1869 I commenced with Mr. Wulfing; in 1870, I think, I commenced with Mrs. Wulfing.

X Q. 16. Did Mr. Wulfing remain in the concern after Mrs. Wulfing joined it?

A. He did remain as general agent or superintendent.

X Q. 17. Was he a partner then?

A. After she joined he was no partner.

X Q. 18. Was there any other partner; and, if so, who?

A. There was Mrs. Wilhelmina Rahmer in the business from 1869 to the end of 1871—to the 31st of December, 1871. It commenced in February, 1869.

X Q. 19. Mr. Wulfing, you say, was general agent or superintendent after Mrs. Wulfing joined the firm in 1870. Was he such agent or superintendent for the firm?

A. He was.

X Q 20. Then he served the entire firm, did he not?

A. He was general agent of the firm.

X Q. 21. And he did not serve in your business in behalf of Mrs. Wulfing alone, did he?

A. He could not have served for Mrs. Wulfing alone. He tended to the money affairs of our firm in our business.

X Q. 22. How many desks had Mr. Gunther at 460 Broome street while you were partner at the same place?

A. Well, Mr. Wulfing had only a desk there, and he tended to both businesses. There was no extra desk there for Mr. Gunther.

758 X Q. 23. Did Mr. Gunther have any clerks there?

A. No.

X Q. 24. Do you know whether Mr. Gunther or the firm Gunther & Co. had any other place of business in this city at the same time that you were in business in Broome street?

A. I believe they had an office up in 86th street; besides, I don't know.

X Q. 25. Please state what business transactions were carried on between Mrs. Wulfing and Mr. Gunther in your presence or to your knowledge.

A. They carried on the artificial stone works.

X Q. 26. Were you ever present when Mrs. Wulfing did any business in relation to artificial stone works?

A. Mrs. Wulfing never did. Mr. Wulfing always attended to that, as far as my knowledge goes.

X Q. 27. If that is so, please hear the examiner read X Q. 25 and your answer and state whether you did not misunderstand that question.

A. I said that it happened the same as in my business. Mr. Wulfing acted in her name the same as he acted in the firm name of Rahmer & Co.

X Q. 28. I want to know whether you were ever personally present when Mrs. Wulfing transacted business with Mr. Gunther.

A. No.

X Q. 29. I also wish to know whether you were ever personally present when Mrs. Wulfing transacted business with Mr. Wulfing relative to the affairs of Gunther & Co.

A. No.

X Q. 30. From what do you, then, infer that Mrs. Wulfing was Gunther's partner, or in business connection with him?

A. Mr. Wulfing told me himself that he went into partnership with him at that time.

X Q. 31. Well, but Mr. Wulfing is not Mrs. Wulfing, is he?

A. That is not Mrs. Wulfing; of course not.

X Q. 32. How did the fact that Mr. Wulfing was Mr. Gunther's partner make you think that Mrs. Wulfing was also Mr. Gunther's partner?

A. Because Mr. Wulfing—he had no name then. He had no name in my firm at the time, and I was under the impression that it was the same with Mr. Gunther as it was with my firm.

X Q. 33. Then, this connecting Mrs. Wulfing with Gunther's business is only your impression, is it not?

A. It was my impression at that time that they were in partnership.

X Q. 34. Are you aware that Mr. Wulfing has means which do not belong to his wife and are not under her control?

A. I think that the whole money was under his control.

X Q. 35. If it was, what made you go into partnership with Mrs. Wulfing?

759 A. That's more than I could tell you to-day.

X Q. 36. What did Mr. Wulfing tell you in relation to his partnership with Mr. Gunther?

A. Well, he told me that Mr. Gunther had some thousands dollars in his hands, and he went into partnership on account of the money; that is what I understood him.

X Q. 37. Are you sure he told you that he went into partnership with Mr. Gunther, or did he only tell you that he was interested in Mr. Gunther's business because he had lent money to Mr. Gunther?

A. Well, he told me that he went in partnership at that time.

X Q. 38. When did he tell you so?

A. Well, that was—I can't tell you when the time was—that was about two years ago, when Mr. Gunther made his office in our business.

X Q. 39. What do you mean by making his office?

A. If there is letters coming to the office for the firm A. Gunther & Co., and there was a little sign on the stairs, A. Gunther & Company.

X Q. 40. Were there no letters coming to that office for Gunther & Company three years ago?

A. No; only came when the time Mr. Gunther moved into that office; that was when Mr. Wulfing came to me and asked me if I would have no objection to have the sign up, Gunther & Company.

X Q. 41. Where did Mr. Wulfing tell you he was in partnership with Mr. Gunther?

A. In our business, 460 Broome street.

X Q. 42. Was any one present when he told you that?

A. Not as I can tell.

X Q. 43. Did he tell you that on the same occasion when he asked you about Gunther & Co.'s sign?

A. I can't recollect that, whether he told me then or a couple of days afterwards.

X Q. 44. Were you in the habit of calling on or seeing Mrs. Wulfing while you were her partner in business?

A. I came sometimes in her house, and she came down sometimes in the business.

X Q. 45. Did she ever tell you that she was in partnership with Mr. Gunther?

A. I never spoke on business matters with Mrs. Wulfing.

X Q. 46. Question repeated.

A. She never told me.

And in answer to redirect examination the witness says as follows:

R. D. 47. If you did not talk business with her, why was her name used in your business?

760 A. Mr. Wulfing tended all the business matters, and her name was only used on account of his name.

R. D. 48. Explain how her name was only used on account of his name.

Objected to as indefinite and immaterial.

A. Well, I don't know the circumstances why he did so, but he withdrew his name and substituted hers in the contract.

R. D. 49. What was the general understanding among business men and business people having dealings with Gunther & Company as to who constituted the company in that firm?

Objected to as improper, the witness not being able to testify as to the general understanding of business men and business people, and also because it does not appear that witness had any dealings with Gunther & Co., and as calling for an opinion and hearsay evidence.

A. Those people that did business with the firm had the general opinion that either Mr. or Mrs. Wulfing was a partner of Gunther's.

Counsel for defendants objects to this answer for the same reasons cited as objection to R. D. question 49.

R. D. 50. Look at Complainant's Exhibit D and state how that sign you spoke of corresponded with the title of the firm in the top of the circular, Exhibit D, and with the title at the bottom of that circular.

A. That was about the same as this—H. A. Gunther & Company.

And in answer to recross-examination the witness says as follows:

R. X 51. Were the words "artificial stone works" on that sign?
A. No.

PH. H. KRAUTH.

Sworn to before me this 3d day of June, A. D. 1873.
KENNETH G. WHITE,
Examiner, &c.

NICHOLAS HAAS, a witness called and sworn for complainants, deposes and says:

Q. 1. What is your name, age, residence, and occupation?
A. Nicholas Haas; age, 45 years; residence, 1491 Third avenue, New York, and am a builder.
Q. 2. Did you, in the year 1872, have any artificial stone or concrete sidewalk or pavement laid in this city; and, if so, where and by whom was such sidewalk made?
761 A. I had some done by Mr. Gunther in 1872, in Eighty-third street, between Second and Third avenues.
Q. 3. Is that Mr. Gunther the person who is here present?
A. Yes; that is the gentleman.
Q. 4. What time in 1872?
A. It was in November, I believe; November or December.
Q. 5. Describe how that sidewalk was made which Mr. Gunther, as you say, made.
A. It was made of sand and gravel and Portland cement.
Q. 6. Was it made in one piece or how otherwise?
A. It was made in kind of diamonds, you know, and some square pieces and some tin-foil put between the joints.
Q. 7. At what time in the making of the different parts of the pavement was the tin-foil put in?
A. As soon as one stone was finished the tin-foil was put in and another one started.
Q. 8. How much pavement of this sort having tin-foil between the joints did Mr. Gunther make for you in Eighty-third street at the time referred to?
A. I can't tell exactly how many feet exactly. There is fifty feet front.

And in answer to cross-examination witness says as follows:

X Q. 9. Did you order Mr. Gunther to lay that pavement for you in blocks?
A. Yes, sir.
X Q. 10. Was that pavement laid for you personally or were you making it under contract for others?
A. I built it under contract for others.
X Q. 11. Had you contracted for a cement pavement in blocks with the owner of the building?
A. Yes, sir; then I contracted with Mr. Gunther.

X Q. 12. Did you have a written contract with Mr. Gunther or did you only employ him to lay the pavement for you?

A. I had a written estimate from him—35 cents a foot.

X Q. 13. Was that the first cement pavement that you had laid in blocks?

A. No, sir.

X. Q. 14. When was the first made for you?

A. The first was made for me by Mr. Schillinger about four or five years ago.

X Q. 15. Is that Mr. J. J. Schillinger here present?

A. Yes, sir.

762 X Q. 16. Why did you not employ Mr. Schillinger to lay that pavement for you in Eighty-third street?

A. He was ready to go away to Europe. He did not do any more work.

X Q. 17. Did you, then, offer the job to Mr. Schillinger before giving it to Mr. Gunther?

A. Yes, sir.

X Q. 18. Did you tell Mr. Schillinger that you were going to give it to Mr. Gunther?

A. No, sir.

X Q. 19. Did Mr. Schillinger request you to give it to Mr. Gunther?

A. No, sir.

X Q. 20. When did you first see a cement pavement in blocks?

A. I guess the first I saw was in front of my house, in Third avenue.

X Q. 21. Are you sure that is the first one you ever saw?

A. I think I am sure; the first one of that kind.

X Q. 22. What do you mean by "the first one of that kind?"

A. The material, and the way it is laid, by flag and flag and in joints.

X Q. 23. How long have you been a builder?

A. In this city about twenty-two years and in the old country about ten.

X Q. 24. Were you not once a policeman in this city?

A. Yes, sir.

X Q. 25. When was that?

A. That was from 1858 to 1865.

X Q. 26. So you were a policeman for seven years, a builder for thirty-two years—makes thirty-nine; and as you are only forty-five years old you must have been six years old when you started as a builder. Is that so?

A. No, sir; the seven years I served for the police department I attended to my business most every week, pretty much—that is, in the building line.

X Q. 27. So you were a policeman and builder at the same time, were you?

A. Yes, sir.

X Q. 28. Did you never, before you saw that pavement in front of your house, see a cement floor or pavement?

A. I saw cement floors and made them myself, but none of this kind.

X Q. 29. Did you never see cement floors laid Mosaic fashion—in blocks?

A. No, sir.

X Q. 30. In what year was that house built for you in front of which Mr. Schillinger laid his pavement?

A. I built it about eight years ago.

X. Q. 31. Can you not tell the year in which Mr. Schillinger laid that pavement for you?

A. I cannot tell exactly whether it is four or five years; something like it.

763 X Q. 32. Are you sure it is not more than five years ago?

A. No, sir; I don't think it is five years, quite.

X Q. 33. Are you sure it is not less than four years ago?

A. Yes; it is less than four years. I just think the matter over.

X Q. 34. Was it in the spring or the fall of the year?

A. It was in the fall.

X Q. 35. In the fall of 1869?

A. I believe it was 1869. It was three years last fall.

X Q. 36. Was anything put by Mr. Schillinger between the cement blocks of that pavement?

A. Yes, sir; felt.

And in answer to redirect examination the witness says as follows:

R. D. 37. Look at the piece of dark material I now hand to you and state how that compares with what Mr. Schillinger, as you say, put between the blocks of that pavement.

A. Yes, sir; it is the same material. It looks like it.

Counsel for complainant offers the piece of felt shown to the witness in evidence, and it is marked Complainant's Exhibit E.

NICHOLAS HAAS.

Sworn before me this 3d day of June, A. D. 1873.

JOHN A. SHIELDS,
Examiner, &c.

NEW YORK, *June* 4, 1873.

Present: Counsel for both parties.

JOHN SCOTT, a witness called and sworn in behalf of the complainant, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. John Scott; age, 49 years; I reside and have my office in this city, and am a lawyer.

Q. 2. Please look at Complainant's Exhibit F and state if you are the John Scott named therein as president of the Schillinger Artificial Stone Company.

A. Yes, sir; I am.

Q. 3. State whether or not that company obtained a license from John J. Schillinger to use the patented improvement described in the letters patent mentioned in Exhibit F; and, if yea, was such license in writing?

A. Yes, sir; they did, and it was in writing.

764 Q. 4. Has the company or you, as president, that license, and can you produce it?

A. I cannot produce it. It is in the charge of the secretary of the company, who is now absent in Europe.

Q. 5. Please look at the paper now shown you and state whether or not the same is a copy of that license.

Objected to as incompetent.

A. It is, to the best of my knowledge and belief, a copy, but I would not swear to it without comparing it with the original.

Q. 6. Did you ever read the license Mr. Schillinger gave to such company?

A. Yes, sir.

Counsel for complainant offers in evidence the paper shown to witness by Q. 5, and it is marked Complainant's Exhibit G.

Counsel for defendants objects to the introduction of this paper in evidence, as it is incompetent.

And in answer to cross-interrogatories the witness says:

X Q. 7. Was the license which your company obtained from J. J. Schillinger recorded in the United States Patent Office?

A. I do not know.

X Q. 8. Did you not take steps to have it recorded?

A. That matter was left entirely with the secretary.

X Q. 9. What is the name of the secretary?

A. Joel B. Erhardt.

X Q. 10. Do you expect him to return from Europe; and, if so, how soon?

A. When he left for Europe—I don't know — long ago—he said he would be back in five or six weeks. I am expecting him now.

X Q. 11. Was there more than one license issued to or agreement made between your company with said Schillinger in reference to his patent?

A. There was but one agreement in reference to laying the pavement.

X Q. 12. Is that the one of which you think Exhibit G is a copy?

A. I think that is a copy; yes, sir.

X Q. 13. Was any agreement made between your company and Mr. Schillinger, besides the one mentioned by you, which had reference to his contract?

A. No, sir; not that had reference to his contract.

X Q. 14. Which contract?

A. The one spoken of here, which is said to be a copy.

765 X Q. 15. How many copies of that contract or agreement were executed by you and Mr. Schillinger?

A. I don't recollect how many copies. Well, I did not sign my name to but one contract. Whether I signed my name to any copies to certify them as correct I do not know.

JOHN SCOTT.

Sworn to before me this 4th day of June, 1873.

R. E. STILLWELL,
Examiner, &c.

Complainant's counsel offers in evidence a written instrument, bearing date October 8, 1872, from the Schillinger Artificial Stone Company to John J. Schillinger of their right to use the patented improvement described in letters patent 105,599 and the reissue thereof, No. 4364, together with the certificate written thereon of the recording of said instrument in Liber Y^{15}, p. 383, of Transfers of Patents, and the same is marked Complainant's Exhibit F.

Proof of the execution of this document, Exhibit F, is waived by defendants.

JOHN J. SCHILLINGER, a witness called and sworn on part of complainant, deposes and says as follows:

Q. 1. What is your name, age, residence, and occupation?

A. John J. Schillinger; age, 42 years; residence, 220 E. 93rd street, New York; occupation, manufacturer of artificial stone.

Adjourned to Wednesday, June 4, 1873, at 11 a. m.

JUNE 4, 1873.

The testimony of JOHN J. SCHILLINGER being resumed, he further says:

Q. 2. Did you give a license under your patent of July 19, 1870, to the Schillinger Artificial Stone Company, and was the same in writing?

A. I did, and it was in writing.

Q. 3. Can you produce such license?

A. No, sir; the copy I had I can't find. I lost it at my office, I believe.

Q. 4. Have you tried to procure from said company the license you gave them under said patent, and with what success?

766 A. I have tried to get it. The secretary, Mr. Erhardt, who is in Europe, he has got that license in the safe, and his partner told me that he has got the key with him for the said safe.

Q. 5. Look at the paper, Exhibit G, and state whether the same is, so far as you know, a copy of said license.

Objected to as incompetent.

A. With my best knowledge and belief it is a copy of the same license.

And in answer to cross-interrogatories the witness says:

X Q. 6. Where is the patent, No. 105,599, referred to in the assignment, Exhibit F?

A. That patent was sent back to the Patent Office.

X Q. 7. Have you a copy of it, and can you produce the same?

A. I have not.

X Q. 8. Are you the complainant in this case?

A. Yes, sir.

X Q. 9. Who prepared the copy of the license to the Schillinger Artificial Stone Company which you say you have lost?

A. I forget who prepared that.

X Q. 10. Who signed it?

A. I believe it was signed by the president and the secretary. You mean the copy?

X Q. 11. Was it also signed by yourself?

A. I believe it was.

X Q. 12. Are you not sure?

A. I am not sure.

X Q. 13. You say it was lost at your office. Where is that office?

A. 247 Broadway, New York.

X Q. 14. Is that your own office or that of the Artificial Stone Company?

A. My own office.

X Q. 15. Do you keep any clerks there?

A. Yes, sir.

X Q. 16. How many?

A. One, and an office boy.

X Q. 17. How long have you had a clerk and office boy?

A. Since I ever keep an office.

X Q. 18. X Q. 17 repeated.

A. Since the 1st May a year ago—1872.

X Q. 19. When did you last see the copy of that agreement which you say has been lost?

A. About June, 1872.

767 X Q. 20. What did you do with it then?

A. I saw it laying in the drawer of my desk.

X Q. 21. Did you not take it to the office of your attorneys, Messrs. Van Santvoord & Hauff?

A. I thought I have, but I am not sure.

X Q. 22. You mean you took it to their office after you last saw it in the drawer of your desk, do you?

A. I am not sure of it.

X Q. 23. Do you remember when you took the first steps to institute this suit?

Objected to by counsel for complainant as not a subject of cross-examination and because no foundation exists in the direct examination of this witness for this question, and counsel for defendant is notified that he makes the witness a witness for the defence by going out of the subjects of the direct examination.

A. It was some time last summer.

X Q. 24. Did you not then take steps to procure the document in question from the Artificial Stone Company?

A. Yes, sir.

X Q. 25. Why did you not succeed?

A. I could not find the contract; nothing but the present copy, which was in the hands of Mr. Albert Erbe.

X Q. 26. Who is Mr. Erbe?

A. My attorney.

X Q. 27. Could not Mr. J. B. Erhardt find the original?

A. J. B. Erhardt was in Europe at that time also.

X Q. 28. Who prepared the document, Exhibit F?

A. I believe Mr. Van Santvoord did.

X Q. 29. Did he not have the contract or your original copy when he prepared this assignment, Exhibit F?

A. I guess he had this one, Exhibit G, from Erbe at the time.

X Q. 30. When did you obtain this copy, Exhibit G, from Mr. Erbe?

A. Mr. Erbe made that copy some time last summer and I got it of him; I believe it was yesterday.

X Q. 31. When did Mr. Erhardt return from Europe—last fall or winter?

A. He returned in the latter part of November or the first part of December.

X Q. 32. When did you go to Europe last winter?

Same objection as to X Q. 23.

A. In the first part of December. I went to Europe in the same vessel by which he had returned; that was the "City of Brussels."

X Q. 33. Then you saw Mr. Erhardt before leaving for Europe, did you not?

768 A. I did; saw him for a very short time.

X Q. 34. Did you not at that time ask him for the agreement in question, and request him to send it to your lawyer?

A. I did not, because Mr. Van Santvoord did not ask me for it at that time. Mr. Van Santvoord never asked me for it until I came back.

X Q. 35. When did you come back?

A. The 15th of April, 1873.

X Q. 36. Mr. Erhardt was then here, was he not?

A. He was then gone a few days.

X Q. 37. Who told you that Mr. Erbe had sent the copy, Exhibit G, to Mr. Van Santvoord in the fall of last year?

A. Nobody told me that.

X Q. 38. What, then, made you guess that Mr. Van Santvoord had it from Mr. Erbe, as you swore in answer to X Q. 29?

A. Mr. Van Santvoord told me he was over to Erbe about this copy.

X Q. 39. When did Mr. Van Santvoord tell you that?

A. I forget that time.

X Q. 40. Was it more than a month ago?

A. No; I guess not.

X Q. 41. Where is the office of Mr. Erbe?

A. 25 Chambers street, New York.

X Q. 42. When Mr. Van Santvoord told you that he was over to Mr. Erbe, did he not tell you that it was the same day or within a few days when he saw Mr. Erbe about that agreement?

A. I don't recollect.

X Q. 43. Mr. Van Santvoord never told you that he saw Mr. Erbe about that agreement last fall, did he?

A. I guess not.

X Q. 44. From what do you infer that he had that agreement or copy thereof from Mr. Erbe last fall?

A. I believe Mr. Van Santvoord told me that he saw Mr. Erbe in regard to that copy some time last summer or last fall.

X Q. 45. Please hear the examiner read X Q. and answer 43, and also your answer to X Q. 44, and state which of the two answers is true and which untrue.

Objected to as irrelevant and because the answers in question do not contradict each other, as is assumed by the question.

A. Well, I recollect now that Mr. Van Santvoord has seen Mr. Erbe in a case where he had to make a contract for me or something; I don't recollect what it was. He saw Mr. Erbe, I believe, to get that copy. Mr. Erbe told me a few days afterwards that Mr. Van Santvoord was there about that contract, but he said he
769 had not got the original contract, but at certain time he took the copy of my original contract, and he told me he showed him that. I forget whether he said he showed or gave it to him.

X Q. 46. Then your answer to X Q. 37 was also untrue?

Counsel for complainant objects to the last question because it is improper and unnecessarily disrespectful.

A. He did not send the copy, and I do not recollect that anybody told me that Mr. Erbe sent a copy to Mr. Van Santvoord.

JOHN J. SCHILLINGER.

Sworn to before me this 4th day of June, 1873.

R. E. STILWELL,
Examiner, &c.

Complaint rests.

770 COMPLAINANT'S EXHIBITS.

COMPLAINANT'S EXHIBIT A. R. E. S., Examiner, &c.

THE U. S. PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the reissued letters patent granted John J. Schillinger, dated May 2nd, 1871, No. 4364, for "improvement in concrete pavements."

In testimony whereof I, Sam'l A. Duncan, acting commissioner of patents, have caused the seal of the Patent Office to be hereunto affixed this eighth day of June, in the year of our Lord one thousand eight hundred and seventy-one, and of the Independence of the United States the ninety-fifth.

[L. S.] SAM'L A. DUNCAN,
Acting Commissioner.

No. 4364.—Reissue.

The United States of America to all to whom these letters patent shall come:

Whereas John J. Schillinger, of New York, New York, has alleged that he has invented a new and useful improvement in concrete pavements (for which letters patent were issued to him, dated July 19, 1870, which letters having been surrendered, the same have been cancelled and new letters ordered to issue to him on an amended specification), and has made oath that he is a citizen of the United States; that he verily believes he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor.

771 These are, therefore, to grant to the said John J. Schillinger, his executors, administrators, or assigns, for the term of seventeen years from the nineteenth day of July, one thousand eight hundred and seventy, the full and exclusive right and liberty of making, using, and vending to others to be used, the said improvement, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand at the city of Washington, this second day of May, in the year of our Lord one thousand eight hundred and seventy-one, and of the Independence of the United States of America the ninety-fifth.

[L. S.] C. DELANO,
Secretary of the Interior.

Countersigned and sealed with the seal of Patent Office.
M. D. LEGGETT,
Commissioner of Patents.

UNITED STATES PATENT OFFICE.

JOHN J. SCHILLINGER, of New York, N. Y.

Letters Patent No. 105,599, dated July 19, 1870; reissue No. 4364, dated May 2, 1871.

Improvement in Concrete Pavements.

The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, John J. Schillinger, of the city, county, and State of New York, have invented a new and useful improvement in concrete pavement; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a plan of my pavement.

Figure 2 is a vertical section of the same.

Similar letters indicate corresponding parts.

This invention relates to a concrete pavement which is laid in sections, so that each section can be taken up and relaid without disturbing the adjoining sections.

772 With the joints of this sectional concrete pavement are combined strips of tar paper or equivalent material arranged between the several blocks or sections in such a manner as to produce a suitable tight joint, and yet allow the blocks to be raised separately without affecting the blocks adjacent thereto.

In carrying out my invention I form the concrete by mixing cement with sand and gravel or other suitable material to form a plastic compound, using about the following proportions:

One part, by measure, of cement; one part, by measure, of sand, and from three to six parts, by measure, of gravel, with sufficient water to render the mixture plastic; but I do not confine myself to any definite proportions or materials for making the concrete composition.

While the mass is plastic I lay or spread the same on the foundation or bed of the pavement either in molds or between movable joists of the proper thickness, so as to form the edges of the concrete blocks, *a a*, one block being formed after the other.

When the first block has set I remove the joists or partitions between it and the block next to be formed, and then I form the second block, and so on, each succeeding block being formed after the adjacent blocks have set; and since the concrete in setting shrinks, the second block, when set, does not adhere to the first, and

so on; and when the pavement is completed each block can be taken up independent of the adjoining blocks.

Between the joints of the adjacent blocks are placed strips *b* of tar paper or other suitable material in the following manner:

After completing one block, *a*, I place the tar paper *b* along the edge where the next block is to be formed, and I put the plastic composition for such next block up against the tar-paper joint and proceed with the formation of the new block until it is completed. In this manner I proceed until the pavement is completed, interposing tar paper between the several joints, as described.

The paper constitutes a tight, water-proof joint, but it allows the several blocks to heave separately from the effects of frost, or to be raised or removed separately, whenever occasion may arise, without injury to the adjacent blocks.

The paper, when placed against the block first formed, does not adhere thereto, and therefore the joints are always free between the several blocks, although the paper may adhere to the edges of the block or blocks formed after the same has been set up in its place between the joints.

In such cases, however, where cheapness is an object the tar paper may be omitted and the blocks formed without interposing anything between their joints, as previously described.

In this latter case the joints soon fill up with sand or dust and the pavement is rendered sufficiently tight for many pur-
773 poses, while the blocks are detached from each other and can be taken up and relaid each independent of the adjoining blocks.

What I claim as new, and desire to secure by letters patent, is—

1. A concrete pavement laid in detached blocks or sections, substantially in the manner shown and described.

2. The arrangement of tar paper or its equivalent between adjoining blocks of concrete, substantially as and for the purpose set forth.

JOHN J. SCHILLINGER.

Witnesses:

W. HAUFF.
E. F. KASTENHUBER.

COMPLAINANT'S EXHIBIT B. R. E. S., Examiner, &c.

Bill of Complaint. Filed July 17, 1871.

In the Supreme Court of the District of Columbia, this 17th day of July, A. D. 1871.

JOHN J. SCHILLINGER
vs.
LEWIS CLEPHANE, President; RICHARD B. MOHUN, JOHN L. KIDWELL, MOSES KELLY, WILLIAM S. HUNTINGTON, SAMUEL G. YOUNG, HALLET KILBOURN, ADOLPHUS S. SOLOMONS, and ADDISON M. SMITH, trading as The Metropolis Paving Company (Portland Stone Co.).

Equity No. 2464. Docket 11.

The complainant states as follows:

1st. That he is a resident of the city of New York, in the State of New York, and brings this suit in his own right.

2nd. That the respondent is a corporation duly created and organized under and by virtue of the laws of the United States and has its "habitat" in the District of Columbia, and the aforementioned Lewis Clephane *et al.* are sued in this action as such corporation.

774 3rd. That on or about the second day of May, A. D., 1871, letters patent were granted to him for an "improvement in concrete pavements," numbered 4364, by United States Commissioner of Patents, at Washington, D. C., a duly certified copy of which letters patent is hereto annexed, marked "J. J. S," and prayed to be taken and read as part hereof.

4th. That he is the owner of and interested in the said patent for and in the said District of Columbia.

5th. That the respondent, the said "Portland Stone Co.," without assignment, permission, right, or color of title or any authority whatsoever from this complainant, has in different parts of the city of Washington and District of Columbia, and particularly on the north pavement or sidewalk of that street known as Market Space, between Seventh and Eighth streets west, laid and caused to be laid on or about the 27th, 28th, 29th, and 30th of June, 1871, and the 1st and 3rd of July, 1871, the pavement invented and patented as aforesaid by this complainant, and has sold the same for money, thereby infringing the rights of this complainant as guaranteed by the said letters patent to him, and depriving him of the profit and emoluments of exercising the exclusive right of laying the said pavement and using said invention, and that the respondent is still laying and causing to be laid the complainant's patented pavement in different parts of the city of Washington and District of Columbia.

6th. That if said respondent continue to lay and cause to be laid the pavement described in the sixth and seventh pages of the said annexed certified copy of complainant's patent he will be greatly damaged pecuniarily.

Wherefore, as this complainant is entirely without a legal remedy and can obtain relief only in equity, he prays as follows:

Prayers.

1st. That the respondent, the said "Portland Stone Co.," its servants, agents, and workmen, may be restrained by order and injunction from this honorable court from laying or causing to be laid within the District of Columbia the pavement described in drawings and words on the sixth and seventh pages of the said annexed certified copy of complainant's patent, to wit, a concrete pavement laid in detached blocks or sections with tar paper or its equivalent between adjoining blocks of concrete, and known as the Schillinger concrete pavement.

2nd. That the United States writ of subpœna may issue out of this honorable court, directed to the said respondent, of which the said Lewis Clephane is the president, commanding it to be
775 and appear, on a day therein specified, in this honorable court and full, true, correct, and perfect answers make to the matters and things therein contained.

3rd. And for such other and further relief as to this honorable court may seem just and proper, in view of the exigencies of the case; and as in duty bound your petitioner will ever pray, etc.

FRANK TRIGG,
Complainant's Solicitor.

The defendant to this bill of complaint is "The Metropolis Paving Company."

JOHN J. SCHILLINGER.

CITY OF NEW YORK, }
County and State of New York, } *ss:*

On this 14th day of July, 1871, before me, clerk of the superior court of the city of New York, personally came John J. Schillinger, the complainant in the foregoing bill of complaint, who, being duly sworn, says that he has read said bill of complaint, and that the facts therein stated of his own knowledge are true, and that the facts therein stated upon information and belief he believes to be true.

[SEAL.] JAMES M. SWEENY,
Clerk of the Superior Court of the City of New York.

Answer of Portland Stone Co. Filed Sept. 5, 1871.

In the Supreme Court of the District of Columbia.

JOHN J. SCHILINGER
vs.
PORTLAND STONE CO. } 2464. Equity Dock. 11.

The answer of the Portland Stone Company, by Lewis Clephane, president.

The defendant, saving all advantage to errors in said bill contained, makes answer and says—

1. That he is not acquainted with the plaintiff's residence, and if material requires proof of the same.

776 2. That the respondent is a corporation doing business in the District of Columbia.

3. That the respondent has no personal knowledge of the granting of letters patent as set out in this article, and if material requires proof of the same; but this defendant denies that the plaintiff is entitled to the patent for the improvement in concrete pavement, as set out in the letters patent referred to in this article of said bill, and a copy of which is attached to the same.

This defendant denies that the same is a new improvement in concrete pavements, and further denies that the plaintiff is the original and first inventor or discoverer of the said improvement, as he verily believes, but avers that the same, to the knowledge and belief of the plaintiff, had been previously known and used by one Charles J. Bandman in the year 1869, in the town of Union, Hudson county, State of New York, and from whom this plaintiff learned the art of making and laying said pavements as described in said letters patent; and this respondent shows unto your honor that the said stone manufactured by the said Schillinger has been in use since the days of the ancient Egyptians and Romans, and was commonly used by them for pavements, aqueducts, and other structures; that the said art of laying pavements composed of cement and sand of different parts and in sections or blocks, to suit convenience, with tarred felt separating the blocks, has been since the year 1863 extensively laid in all the principal cities of Germany and France, in every respect identical and similar to that claimed by the said plaintiff, and that so common and general was its use that no person has pretended to claim a patent therefor.

And this defendant further shows to the court that the said plaintiff, in the month of July, 1869, introduced himself to the said Bandman and enquired of him as to its manufacture, admitting at the same time that he was perfectly ignorant of the same and knew nothing of its properties; that the said Schillinger subsequently associated himself with one J. L. Schmidt, a workman of said Bandman, and who had learned the art of laying said pavements with said Bandman.

And this respondent avers that the said patent is a fraud upon the United States and its citizens, and that the said plaintiff knowingly and wilfully perjured himself in swearing to the prerequisite facts to entitle himself to said patent.

This respondent avers that the said pavement, as laid by itself and as laid by said Schillinger, has been and is now extensively laid in the city of New York by the said Bandman, the home and residence of the said Schillinger, as this plaintiff has alleged, where no proceedings have been instituted to enjoin the same, and this respondent submits that good faith on the part of plaintiff requires
777 that the validity of said letters patent should be first established at law before the home tribunals of said plaintiff and Bandman prior to the enforcement of his rights by injunction against this respondent.

5th. This respondent admits that it has laid the pavement complained of in this section, but denies that the same is an infringement of the rights of the plaintiff, but, on the contrary, shows to the court that the idea of separating the said blocks or sections by tarred felt or paper occurred originally to the mind of Lewis Clephane, president of the said company, before the said letters patent were granted to the plaintiff, and which the said Clephane did not cause to be patented because it was not believed to be a new invention or discovery.

6th. This defendant denies that the said alleged invention, even if the said plaintiff had been a *bona fide* original inventor of the same, is not patentable from the facts that the said cement and sand have been laid in blocks and sections to be used as pavements, with strips of iron or wood separating the same, and as such have been frequently patented in England and described as such in the public books and printed pamphlets of that country; and this respondent avers that there is nothing of special value in the use of tarred felt or paper over the use of wood or hoop iron, except, possibly, cheapness, and that the tarred felt or paper is simply and exclusively an equivalent of the others.

7th. The foregoing facts considered, and the further fact that the said patent was issued only on 2nd day of May, 1871, and the acts complained were committed during the months of June and July following, that before any equitable relief can be afforded to the plaintiff in this behalf he must first establish his title to the said patent and its validity at law; and this respondent avers that the said plaintiff is not entitled to the relief sought, and prays the same advantage as if it had demurred to the same.

And, having answered fully, prays to be hence dismissed with his costs, &c.

PORTLAND STONE COMPANY,
By L. CLEPHANE, *President.*

I do solemnly swear that I have heard read the answer by me subscribed and know the contents thereof, and that the facts therein stated upon my personal knowledge are true, and that the facts therein stated upon information and belief I believe to be true.

LEWIS CLEPHANE.

Subscribed and sworn to before me this 5th of September, 1871.

R. J. MEIGS, *Clerk*,
By L. P. WILLIAMS,
Assist. Clerk.

778 *Replication. Filed Dec.* 14, 1871.

In the Supreme Court of the District of Columbia, this 14th day of December, 1871.

JOHN J. SCHILLINGER
vs.
PORTLAND STONE COMPANY. } Equity. 2464.

The plaintiff hereby joins issue upon the answer of the defendant.

FRANK TRIGG.

Final Decree. Filed December 30, 1871.

In the Supreme Court of the District of Columbia, this 30th day of December, 1871.

JOHN J. SCHILLINGER
vs.
PORTLAND STONE COMPANY. } Equity. 2464.

This cause coming on to be heard on bill, answer, and testimony, it is, this thirtieth day of December, A. D. 1871, by the court ordered, adjudged, and decreed that the injunction perpetually restraining defendant from laying or causing to be laid the patented pavement described in complainant's bill of complaint, prayed for in said bill of complaint, be, and the same is hereby, granted.

By the court:

A. WYLIE, *Justice.*

DISTRICT OF COLUMBIA, *To wit:*

I, R. J. Meigs, clerk of the supreme court for said District, do hereby certify that the foregoing writings are true and correct copies of the original bill, answer of defendant, replication, and final decree in equity cause No. 2464, Schillinger *vs.* Portland Stone Company, said originals being on file and of record in the clerk's office of said court.

Witness my hand and the seal of said court this 10th of February, 1872.

[L. S.]

R. J. MEIGS, *Clerk*,
By L. P. WILLIAMS,
Assist. Clerk.

Copy, $3.70, paid by J. L. Norris.

R. J. MEIGS, *Clerk.*

L. P. WILLIAMS,
By R. J. MEIGS, JR.

779 *Justice's Certificate.*

DISTRICT OF COLUMBIA, *To wit:*

I, D. K. Cartter, chief justice of the supreme court of the District of Columbia, do certify the foregoing attestation by R. J. Meigs, clerk of the said court, to be in accordance with law and by the proper officer.

Witness my hand and seal this 15th day of Febr'y, 1872.

[L. S.] D. K. CARTTER,
Ch'f Just.

COMPLAINANT'S EXHIBIT C. R. E. S., Ex'r.

In the Supreme Court of the District of Columbia, this 30th day of December, 1871.

JOHN J. SCHILLINGER
vs.
PORTLAND STONE COMPANY. } Equity No. 2464.

This cause coming on to be heard on bill, answer, and testimony, it is, this 30th day of December, A. D. 1871, by the court ordered, adjudged, and decreed that the injunction perpetually restraining defendant from laying or causing to be laid the patented pavement described in complainant's bill of complaint, prayed for in said bill of complaint, be, and the same is hereby, granted.

By the court:

A. WYLIE.

I hereby certify that the above is a true copy of the decree this day passed in the above-entitled cause.

R. J. MEIGS, *Clerk, &c.,*
By R. J. MEIGS, JR., *Ass't Cl.*

780 COMPLAINANT'S EXHIBIT D. R. E. S., Examiner, &c.

Circular.

Artificial Stone Works.

86th street bet. 3d & 4th avenues. Patented Nov. 10, 1868.

Herm. A. Gunther & Co., proprietors, office 460 Broome street.

NEW YORK, —— —, 187–.

We herewith beg leave to call your attention to the very important fact that the manufacturing of artificial stone has made immense progress for the last twelve months and that we can prove by

letters from prominent parties, who were somewhat suspicious in the beginning, the perfect success of this new method.

The beauty of our patent is the mixture by chemicals and Portland cement which guarantees almost any strength of the stone; at any rate to the extent of 800,000 lbs. to a cubic foot.

Our stone combines in an extraordinary manner all the elements of building material; it is compact; it is uniform in its structure; it will not absorb moisture; it can stand the rays of the sun or fire; it can stand the heaviest frost.

Our stone is particularly adapted for laying floors in one piece, laying sidewalks in blocks, making arches, copings, keystones, corner blocks, bathing tubs, cisterns, door and window caps, sills, cornices, brackets, head and tombstones, monuments, mantlepieces, pillars, sewer pipes, chimney caps, tiles, &c., &c.

Specimens can be seen in our work yard, in East 86th street between 3d and 4th avenues.

You are respectfully invited to call and see us before giving out your contracts. You will be satisfied by our work as well as by our prices.

We also keep a large stock of the very best brands of Portland cement constantly on hand, which we sell either by the barrel or by quantities direct from the vessel in any quantity.

Yours very truly, H. A. GUNTHER & CO.

781 COMPLAINANT'S EXHIBIT F. R. E. S., Ex'r.

JUNE 3, 1873.

In consideration of one dollar to the Schillinger Artificial Stone Company, a corporation organized under the laws of the State of New York, in hand paid by John J. Schillinger, of New York city, the receipt whereof is hereby acknowledged, the said company do hereby grant, sell, assign, and transfer unto the said John J. Schillinger all the right, title, and interest which they have in, to, or under certain letters patent of the United States granted to said Schillinger for an improvement in concrete pavement, which letters patent were originally granted to him July 19, 1870, No. 105,599, and were afterwards reissued to him May 2, 1871, numbered reissue No. 4364, and all the right of said company to use the said patented improvement in the counties of New York and Westchester, in the State of New York; and in consideration aforesaid the said company hath sold, assigned, and transferred, and doth by these presents sell, assign, and transfer, unto the said John J. Schillinger, his executors, administrators, and assigns, all claims and demands and rights of action for damages which have arisen or accrued to the said company under said letters patent against any person or persons who have infringed upon or violated the said patent in the said counties of New York and Westchester or in either of them.

In witness whereof the said company have hereunto caused their

seal to be affixed and these presents to be signed by their president and secretary the 8th day of October, 1872.

[L. S.] JOHN SCOTT, *Pres't.*
J. B. ERHARDT, *Secretary.*

In presence of—
GEORGE ELLIS.
THOMAS O'SHEA.

U. S. PATENT OFFICE.

Rec'd for record Nov. 8, 1872, and recorded in Liber Y 15, page 383, of Transfers of Patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

[L. S.] J. M. THACHER,
Acting Com'r of Patents.

782 COMPLAINANT'S EXHIBIT G. R. E. S., Ex'r.

JUNE 6, 1873.

Whereas I, John J. Schillinger, of New York, did obtain letters patent of the United States No. 105,599 for a certain improvement in the laying of artificial stone, which letters patent bear date the nineteenth day of July, 1870: Now, this indenture witnesseth that for and in consideration of the issue to me by "The Schillinger Artificial Stone Company" of each and every share, being two thousand shares, of the par value of one hundred dollars each share, in the capital stock of the said company as full-paid-up shares, the receipt of which is hereby acknowledged, and for and in consideration of all and singular other the conditions, stipulations, and provisions herein contained, I have granted and conveyed, and by these presents do grant and convey, unto the said "The Schillinger Artificial Stone Company" the exclusive right under the said letters patent to make and use and to grant to others to make and use the said improvement in the laying of artificial stone within and throughout the counties of New York and Westchester, in the State of New York, and in no other place or places; to have and to hold the same to the said "The Schillinger Artificial Stone Company" for and during the term of five years from and after the the seventh day of December, in the year one thousand eight hundred and seventy, fully to be completed and ended and no longer:

Provided always, nevertheless, and this grant is upon the express terms and conditions and stipulation following—that is to say:

First. That the said "The Schillinger Artificial Stone Company" shall and will from time to time and at all times during the time above limited furnish and provide all such working capital as shall be necessary to prosecute and complete successfully and advantageously all the work which they may undertake in artificial stone in either of the said two counties during the said term, and that without making any calls or assessments or imposing any contribution upon any of the shares of stock so as aforesaid issued.

Secondly. That the said "The Schillinger Artificial Stone Company" will not issue any shares of stock additional to the stock so as aforesaid issued.

Thirdly. That the said "The Schillinger Artificial Stone Company" will not use any of the funds nor charge any of the shares of the stock of the said company with any expenses or disbursements for any other purpose than those necessarily incident to the construction of artificial stone pavements or other artificial stone work.

Fourthly. That the said "The Schillinger Artificial Stone Company" will at all times during the continuance of the said
783 term cause true and perfect books to be kept and an account of stock taken on the thirtieth day of every June and the thirty-first day of every December, or oftener if need be, and the said books then to be settled and closed and an account of profits and loss truly stated, and all profits over and above any reasonable and proper reserves fairly divided and paid over to the holders of the said shares.

Fifthly. That the said "The Schillinger Artificial Stone Company" shall and will employ me, the said John J. Schillinger, as their superintendent for and during the said term from the beginning to the end thereof, and shall allow and pay me for my services as such the salary or sum of seven thousand five hundred dollars yearly and every year, payable in equal monthly payments from month to month from and after the beginning of the said term, it being understood and agreed that nothing herein contained shall be so construed as to impair or diminish my right to give my time and direct my attention to the sale of my said patent right, so far as not herein and hereby disposed of, or of any other rights thereunder or to the prosecution of any other business, so far as compatible with the faithful performance of my duties as such superintendent; and

Sixthly. That the said "The Schillinger Artificial Stone Company" will not grant or convey to any person other than me, the John J. Schillinger, or my nominee any right to do any work covered by the said letters patent otherwise than as an employee or specific subcontractor of the said company.

And it is hereby expressly agreed that if the said "The Schillinger Artificial Stone Company" shall fail to perform or observe any of the said conditions in any particular these presents shall thereupon immediately and without more — be and become void and of no effect, and all and every right hereby granted shall thereupon immediately revert to and revest in me, my executors, administrators, and assigns, and any subsequent making or using or granting or conveying to others of the right to make or use such improvement in the laying of artificial stone by color of these presents shall be an infringement of the rights secured by the said letters patent in like manner as if these presents had never been made; and nothing herein contained shall be so construed as to bar or estop me or my executors, administrators, or assigns from maintaining any action against the said "The Schillinger Artificial Stone Company" or any of the directors or stockholders thereof.

And the said "The Schillinger Artificial Stone Company" do by these presents covenant and agree to and with the said John J. Schillinger, his executors, administrators, and assigns, that all and singular the terms, conditions, and stipulation in favor of the said John J. Schillinger here contained shall be truly and faithfully performed and observed.

And it is hereby further stipulated and agreed that the
784 said "The Schillinger Artificial Stone Company" may at any time during the existence of the said company reconvey to the said John J. Schillinger all the rights conveyed to it by this indenture, and that thereupon all claims of the said John J. Schillinger on the said company for salary shall cease and be determined, except such salary as shall have been previously earned.

In witness whereof I, the said John J. Schillinger, have hereunto set my hand and seal, and the said "The Schillinger Artificial Stone Company" have caused their corporate seal to be hereunto affixed, attested by the hand of their president and secretary, this twenty-third day of December, one thousand eight hundred and seventy.

JOHN J. SCHILLINGER. [L. S.]
[CORPORATE SEAL.] JOHN SCOTT, *President.*
JOEL B. ERHARDT.

Sealed and delivered in presence of—
JOSEPH BELL.
THEODORE R. SHEAR.

STATE OF NEW YORK,
City and County of New York, } *ss:*

Be it remembered that on this twenty-third day of December, in the year 1870, at my office, 167 Broadway, in the city and county and State of New York, before me, the undersigned, a notary public of the city and county of New York, appointed by the Governor of the State of New York, and duly qualified to take acknowledgment and proof of deed and other instruments to be used and recorded, personally came John J. Schillinger, to me known to be the individual described in and who executed foregoing instrument, and he acknowledged that he executed the same, and then and there also personally appeared John Scott, president of "The Schillinger Artificial Stone Company," of the city of New York, with whom I am personally acquainted, and who, being by me duly sworn, said that he resided in the city of New York; that he was the president of "The Schillinger Artificial Stone Company;" that he knew the corporate seal of the said company; that the seal affixed to the foregoing instrument was such corporate seal; that it was so affixed by order of the board of trustees of said company, and that he signed his name thereto by the like order as president of the said company.

In witness whereof I have hereunto set my hand and official seal, at the city of New York aforesaid, this twenty-third day of December, one thousand eight hundred and seventy.

[NOTARIAL SEAL.] (Signed) FISHER A. BAKER,
Notary Public, N. Y. City and County.

785 Circuit Court of the United States for the Southern District of New York.

JOHN J. SCHILLINGER
ag't
HERMANN A. GUNTHER and HELENA WULFING.

THURSDAY, *Oct.* 30, 1873.

Testimony taken in rebuttal on the part of the complainant for final hearing under the 67th rule of the Supreme Court, in equity, by R. E. Stilwell, Esq., examiner.

Present: John Van Santvoord, Esq., counsel for complainant; Arthur V. Briesen, Esq., counsel for defendants.

LORENZ WEIHER, called and sworn as a witness on the part of complainant, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. Lorenz Weiher; age, 40 years; 206 East 93d street; occupation, I am a builder.

Q. 2. Do you know Hermann A. Gunther; and, if so, how long have you known him?

A. I know him by the name of A. Gunther about 6 years.

Q. 3. Do you know his place of business or office; and, if yea, where is it?

A. Yes, sir; it is in 86th street, between 3d and 4th avenues.

Q. 4. Do you know of a cement pavement being laid at Mr. Gunther's place, in 86th street? And, if yea, state when it was done and the character of the pavement, if you know.

(Objected to as leading and without foundation.)

786 A. Yes; there was one laid in 86th St., in front of his house. I think it was in the year 1869. It was a cement pavement.

Q. 5. Did you see that pavement first when it was being laid or after it was laid?

A. After it was laid.

Q. 6. How did it appear when you first saw it?

A. It appeared like a flat piece of cement.

Q. 7. Was it in one piece or more than one piece?

(Objected to as leading.)

A. In one piece.

Q. 8. Have you seen that same pavement during this year?

A. Yes, sir.

Q. 9. How did it appear when you last saw it this year?

A. Kind of broken down and cracked.

Q. 10. In what direction were the cracks?

A. In most different directions.

Q. 11. When did you last see that pavement this year?

A. About three weeks ago.

Q. 12. Please describe how it appeared then.

(Objected to because a repetition of Q. 9.)

A. The same as I said before; broken down and patched up.
Q. 13. Where had it been patched up?
A. In different places.
Q. 14. How came you to know of that pavement at Gunther's office in 1869?
A. In passing by.
Q. 15. Do you know of any cement sidewalk laid by Mr. Gunther in Third avenue, at Dunn's carriage factory; and, if so, how came you to know about it?
A. I was passing by.
Q. 16. At what street is that?
A. At corner 87th street and Third avenue.
Q. 17. How was that sidewalk laid?

(Objected to as not rebutting testimony.)

A. How do you mean?
Q. 18. I mean in how many pieces was that sidewalk?

(Same objection.)

A. When finished it was one piece.
787 Q. 19. In what year was it laid?
A. I think it was 1870.
Q. 20. Does that same sidewalk remain there now; and, if not, what has become of it, if you know?

(Same objection.)

A. It don't remain there now; it has been taken up a year after.
Q. 21. Was any other sidewalk put in its place; and, if so, by whom?
A. Yes, sir; by the same party.
Q. 22. What kind of a sidewalk was put in its place and how made?

(Same objection.)

A. Cement. I seen them making some parts—not the whole—as I was passing by, and he had a joist and levelled off, and when he had a piece levelled off he put on cement and worked it along as far as he could reach with the tools, and when they had that done they moved the joist and commenced another piece joined to the first one.
Q. 23. Did you notice whether they put anything against or between the joint where the fresh cement came next to the part already laid down?
A. I have not seen anything laid between.

Cross-examination:

X Q. 24. Of what country are you a native?
A. Germany.
X Q. 25. How long have you been in this country?
A. Twenty-one years.
X Q. 26. And how long in the city of New York?
A. Most all the time.

X Q. 27. Where did you live in the year 1867, and what business did you then carry on?

A. I lived in Seventy-fourth street, and carried on furnace and range business. I might be mistaken in that question, because I am not sure whether it was a year after that I went into the moulding business or a year before.

X Q. 28. Since when are you a builder?

A. About twelve or fourteen years.

X Q. 29. Have you been a builder all that time?

A. Most all that time.

X Q. 30. Do you call yourself a builder because you had a moulding business and dealt in ranges?

A. Yes, sir; I do.

788 X Q. 31. What else did you build besides mouldings and ranges?

A. Nothing else—houses.

X Q. 32. During what time were you in the moulding business? Give the years and months, as near as you remember.

A. 1868, '69, '70, '71.

X Q. 33. Where was your moulding business?

A. Number 180 and 182 Centre street, New York.

X Q. 34. Where did you live at that time?

A. 206 East 93d street.

X Q. 35. Where did you first make the acquaintance of Mr. Gunther?

A. Corner 86th street and 3d avenue.

X Q. 36. When was that? Relate also the circumstances that led to this acquaintance.

A. About five years ago. I was trying to sell him a new house. I met him corner 86th street and 3d avenue, at Nick Haas' house. It was an accidental meeting.

X Q. 37. Who introduced you to Mr. Gunther then and there?

A. Mr. Haas.

X Q. 38. Do you know where Mr. Gunther's business was at that time?

A. Yes; it was—I am not sure—it was between 84th and 86th streets, sure; in Third avenue, between the two blocks—a cigar store.

X Q. 39. When next did you meet Mr. Gunther?

A. Up in my house, a few days after.

X Q. 40. How often have you spoken to him since?

A. A great many times.

X Q. 41. Who told you his name is Hermann?

A. Nobody.

X Q. 42. Then you don't know Hermann A. Gunther, do you?

A. Well, it makes me believe his name is Hermann A. Gunther, because at one time I have been in his cigar store and seen a sign laying behind the counter and I seen the name on, "Hermann Gunther."

(Answer objected to by counsel for defendants as not responsive and hearsay and volunteered.)

X Q. 43. I don't want to know what you guess or believe. You are here to testify as to what you know. Do you know a person by the name of Hermann A. Gunther?

A. Yes.

X Q. 44. How do you know that is his name?

A. I seen once a bill-head, and the address from 86th street, artificial stone works, and that made me believe it was his name.

X Q. 45. Where did you see that bill-head?

A. I found that in my yard.

789 X Q. 46. On what side of Lexington avenue was that sidewalk which you say you saw in 86th street in front of Mr. Gunther's house?

A. On the west side.

X Q. 47. That would be between Lexington and 4th avenues, would it not?

A. Yes.

X Q. 48. You say you saw that pavement after it was finished. How long after it was finished did you see it?

A. About two or three weeks after.

X Q. 49. How did you know when you saw it that it had been laid two or three weeks before?

A. I had been passing by before and there was nothing done with it.

X Q. 50. Was there not a high fence around the area where the pavement now is when you passed by before it was laid?

A. I don't think I seen any.

X Q. 51. What caused you to look at that pavement this year, three weeks ago, as you say?

A. No cause whatever.

X Q. 52. You say it is patched. Where is it patched and how?

A. It is patched on different cracks with some kind of a cement put on top of it.

X Q. 53. Do you positively swear that you saw patches on different cracks?

A. Yes, sir.

X Q. 54. You say the cracks were in most different directions. How do you mean that?

A. They run slant and crosswise.

X Q. 55. Did you see more than five cracks?

A. Yes; I did.

X Q. 56. How many cracks did you see that run crosswise?

A. A good many. I haven't counted them.

X Q. 57. Would it be convenient for you once more to look at that pavement, count the number of cracks that run crosswise, and locate the patches that you may testify more fully in regard to these matters at the next examination?

A. I don't think I have got time to spend for all these matters.

Counsel for complainant requests the witness to visit the pavement in front of Gunther's office, as suggested in the last question, if he can find time, before the next examination.

Adjourned to Monday, Nov. 3d, 1873, at 11 a. m.

790 MONDAY, *Nov.* 3*d.*

Adjourned to Thursday, November 6th, 1873, 11 a. m.

THURSDAY, *November* 6*th.*

Adjourned to Tuesday, November 11th, 1873, 11 a. m.

TUESDAY, *November* 11*th.*

Adjourned to Friday, November 14, 1873, 11 a. m.

FRIDAY, *November* 14, 1873—11 a. m.

Present: Counsel for both parties.

The cross-examination of LORENZ WEIHER resumed:

X Q. 58. Have you just now read the official manuscript of your former testimony?

A. Yes.

X Q. 59. Who gave it to you?

A. It was handed to me in this office.

X Q. 60. Question repeated.

A. The gentleman who writes it.

X Q. 61. Did you ask him for it?

A. Yes, sir.

X Q. 62. Why did you ask him?

A. Because I was not sure of a certain question, which I wanted to explain.

X Q. 63. Which question is that?

A. It was the question about Nick Haas' address—it is not 86th street, it is 84th street. It came in my mind afterwards.

X Q. 64. Were you, in your former testimony, asked about Nick Haas' address?

A. I don't know if it is a question, or what I should call it. I gave that number wrong; that's all I know about it.

791 X Q. 65. Why did you not come here Monday, November 3, to give your testimony?

A. I had no time; I was engaged for other businesses.

X Q. 66. Where were you engaged at 11 o'clock of the forenoon of that day?

A. I was down in Pine street; I don't know the number.

X Q. 67. Did you leave word here that you would not be able to come on that day?

A. I believe I did. I was here one day and said I would not be able to come. I don't recollect what day.

X Q. 68. Are you sure you left word in this office on Monday, the 3d of November, that you would not come?

A. I don't recollect what day I was here.

X Q. 69. Did you meet Mr. Schillinger that morning?

A. I don't know if I did or not.

X Q. 70. Do you remember having met Mr. Gunther that morning?

A. Not as I know.

X Q. 71. Do you remember that on that morning of the 3d November you spent your time in a drinking place on Chatham street between 10 and 11 o'clock?

A. I don't know if I did. I, perhaps, had been in a place, but I don't think I spent my time there.

X Q. 72. Why did you not come to this office on Thursday, the 6th November, to give your testimony?

A. I had, also, important business.

X Q. 73. Why did you not come to this office on Tuesday, the 11th November, to give your testimony?

A. All the same as before.

X Q. 74. How many times were you in this office since you gave your last testimony?

A. I think I was here twice.

X Q. 75. Are you sure of that?

A. I believe; I don't know.

X Q. 76. You say that you first met Mr. Gunther about six years ago in order to sell him a house, or words to that effect. Which house was that? And state, also, whether you did sell it to him.

A. Well, I made a contract with him, and the contract was made in his name—was signed by him. The house is number 208 East 93d street.

X Q. 77. Have you that contract here and can you produce it?

A. Yes, sir.

The paper produced by the witness is offered in evidence by counsel for defendants and is marked "Defendants' Exhibit 16, R. E. S., Ex'r."

792 X Q. 78. This paper produced by you is dated February 24, 1869. How long before drawing that contract did you first speak to Mr. Gunther about selling that place?

A. A few days before, I think.

X Q. 79. Was that your house about which that contract, Exhibit 16, was made?

A. I think it was.

X Q. 80. Was there subsequently a deed of sale made in regard to the same transaction?

A. Yes.

X Q. 81. Is this it (showing witness a deed)?

A. Yes, sir.

The deed shown the witness is offered in evidence by counsel for defendants and is marked "Defendants' Exhibit 17, R. E. S., Ex'r."

X Q. 82. Is the check I now hand you one of those by which Mr. Gunther paid for that property?

A. Yes.

Check shown to the witness by counsel for defendants is offered in evidence and is marked "Defendants' Exhibit 18, R. E. S., Ex'r."

X Q. 83. When did you first know you would likely be a witness in this case?

A. It is several months ago.

X Q. 84. Did you volunteer to be a witness, or are you here under a subpœna?

A. I did not volunteer to be a witness in this case.

X Q. 85. Did you receive a summons that caused you to appear?

A. No, sir.

X Q. 86. Where did you keep Exhibit 16 from the time it was made out till to-day?

A. I had it in my safe for awhile.

X Q. 87. When did you have it in your safe?

A. From the time when I bought the safe until about eight or nine months ago.

X Q. 88. Where next?

A. I handed it to Mr. Schillinger.

X Q. 89. Why did you hand it to Mr. Schillinger?

A. He asked me for it.

X Q. 90. Are you a personal enemy of Mr. Gunther, here present?

793 A. What do you mean by "enemy?"

X Q. 91. Did you ever strike Mr. Gunther publicly with your fist?

A. I did not.

X Q. 92. Did you not violently assault Mr. Gunther in the summer of 1872 in John J. Wentge's brewery, corner of 87th street and Fourth avenue?

A. No.: he attacked me.

X Q. 93. How did he attack you?

A. He catched me by the coat, and I gave him a push—pushed him away, that's all.

X Q. 94. Did you again inspect that pavement in front of Mr. Gunther's office, in 86th street, as requested by me at your last examination?

A. Yes.

X Q. 95. Did you ascertain the number of cracks in the same?

A. Not exactly.

X Q. 96. When did you inspect it? Give the date.

A. Last Monday, the 10th November.

X Q. 97. When last did you see it before the 10th of November?

A. About two or three or four weeks before.

X Q. 98. Did you see any patches in that pavement when last you saw it?

A. I did not see any last, but I saw them before.

X Q. 99. How do you account for that?

A. What do you mean by "account?"

X Q. 100. I mean how you explain the absence of patches when last you saw that pavement?

A. I can't explain anything about that—how they got off, or so.

X Q. 101. I had the pavement in question photographed on the 6th November; please look at this photograph and state whether it represents the pavement as you saw it on the 10th. Describe also

where there are any cracks in that pavement, excepting the points which I have marked *a a, b b, d d.*

A. I can't hardly understand that photograph.

The photograph handed to the witness is offered in evidence by the counsel for defendants and is marked "Def'ts' Exhibit 19, R. E. S., Ex'r."

X Q. 102. As a builder you ought to understand it. The cement pavement is between the line on which the posts *e e* stand and the house. The picket fence that connected the posts had been removed in order to show on the photograph the full width of the cement pavement. With this explanation, X question 101 is repeated.

A. When I seen it there was a fence in front. Well, I think it's pretty near it.

794 X Q. 103. Did you ever observe or see on that pavement any cracks except the cracks which are marked *a a, b b,* and *d d* on that pavement? And, if so, state where you have seen them.

A. There are more, but they could not be seen, because the ornaments stand on top of it.

X Q. 104. Did you ever observe any cracks on that portion of the pavement which is uncovered, excepting the joints *a a, b b,* and *d d?*

A. I don't know; this looks pretty near like it.

(Recess.)

Redirect examination:

Re-D. Q. 105. Had any change been made in the position of the ornaments on the pavement when you saw it last Monday from their position when you saw it two or three or four weeks previous?

A. Yes; they have been removed on one side.

Re-D. Q. 106. Do you recollect where the pavement seemed to you to have been patched?

A. It had been patched near the gate, or, you might say, on the easterly side of the pavement, and some on the straight joint, or what you call nearly straight. I don't mean straight; a long crack, I mean to say.

Re-D. Q. 107. You say that business had kept you from attending here to give your testimony. What was the nature of that business?

A. About selling a mortgage and a house.

Re-D. Q. 108. What place in Chatham street was you in Monday, a week ago, and how long was you there?

Objected to by counsel for defendants as indefinite.

A. I don't know the number. It is an eating-house. I was there, perhaps, ten or fifteen minutes.

Re-D. Q. 109. Was Mr. Gunther there?

Objected to as leading and immaterial.

A. I don't recollect. I ain't sure.

Re-D. Q. 110. You say the ornaments on the pavement have been

removed on one side. Can you explain by means of this photograph, Exhibit 19, whereabouts they stood before or when you saw the pavement previously? If you can, please do so.

A. Well, before they were standing all over, while now they stand on both sides of the pavement and leaving a space in the centre.

795 Re-D. Q. 111. Can you designate by means of the photograph, Exhibit 19, the place of any cracks besides those which are shown in that exhibit? If you can, please do so.

Objected to as suggestive and incompetent, and as implying that cracks are shown on the photograph.

A. Well, I don't see any cross-cracks on this photograph. It seems to me this photograph don't show clear enough the cross-cracks that I saw. It looks to be different from the first time I saw it before. I think I seen more cross-cracks than there is on here.

Answer objected to by counsel for defendants as contradictory and in part volunteered, and also as irresponsive.

Counsel for complainant asks counsel for defendants and the defendant, Mr. Gunther, here present, to permit the complainant to remove from off the pavement the ornaments or articles that stand thereon, so that the whole pavement can be seen and so that the complainant may take a photograph of the entire surface thereof.

Defendants' counsel, in reply to the above request, says that the defendant, Mr. Gunther, cannot permit the removal of the ornaments in question from off the pavement, because said ornaments are made of cement and some of great weight, weighing as much as twenty-five hundred pounds apiece, and because, therefore, the removal would be apt to injure some of these ornaments; but the defendant, Mr. Gunther, is willing to sell these ornaments to the complainant or his counsel for the sum of three hundred dollars, and permit their removal, when sold, under his, the said Gunther's, supervision; this proposition to be effective until the 1st day of December, 1873, but no longer.

Counsel for complainant states that after consulting with complainant he finds that said ornaments and articles are not worth anything to him, and therefore he cannot pay three hundred dollars for them or buy them at any price, but that he will remove them from off the pavement and replace them there, and renews his request to defendant and defendants' counsel for permission so to do, and offers, further, to have the same done under the supervision of defendant, complainant furnishing the laborers, and he requests permission to do so at once.

Defendants' counsel replies that the permission to remove the ornaments in question can only be granted under the very favorable conditions mentioned by him.

796 Counsel for complainant further requests permission of defendants' counsel and of defendant, Mr. Gunther, to take photographic views of said pavement and to remove temporarily the picket fence between the posts.

Counsel for defendants cannot grant this last request, because it appears entirely superfluous, Exhibit 19 being a photograph taken after the removal of the picket fence. He also informs complainant's counsel that he may most likely obtain any suitable additional number of these photographs of Peter Baab, photographer, at 1360 Third avenue, New York city.

Re-D. Q. 112. Will you please inspect that pavement again and inform us, at the time this examination shall be adjourned to, what cracks you find therein and patches on the part exposed to view?

(Objected to, because a repetition of the request contained in X Q. 57 and as already answered.)

A. I will.

Adjourned to Thursday, November 20, 1873, 11 a. m.

THURSDAY, *November* 20, 1873—11 a. m.

Present: Counsel for both parties.

The examination of LORENZ WEIHER resumed:

Re-D. Q. 113. Have you, since the last meeting, again looked at the Gunther pavement in 86th street?

(Same objection as to question 112.)

A. Yes; I have been there; I was there the same day; when we left here I went right up and looked at it.

Re-D. Q. 114. Please state whether or not you found any cracks or patches therein on the part that could be seen; and, if so, describe the same.

(Objected to as already answered.)

A. Yes; I found different cross-cracks that were very hard to be found, because I found some cement scattered on top of it. I took my glove and tried to dust it off on the part where I thought
797 I had seen some before, and then I found them under the dust or cement. I thought the photographist could not take them very well, because them cross-cracks——

(Counsel for defendants objects to any expression of opinion on the part of the witness and especially to this, because not called for in the question and volunteered.)

(The witness continues:)

Were scattered with cement, and the other cracks—what you call the long cracks—going from the office to the fence could be seen better, because I haven't noticed any cement on them. I went and seen the photographist on that matter with Mr. Schillinger.

(Objection repeated.)

Mr. Schillinger asked Mr. Baab, the photographist, how he has taken it and about them cracks—long and cross-cracks—and the photographist said the way he has taken the picture it was impossi-

ble for him to show the cross-cracks, because the shade from the sun was right over it, and the photographist said that he could explain the matter, or any other photographist, if necessary. He said if all the ornaments was off, then he could have taken them better.

(Counsel for defendants objects to the answer as incomplete, for the reasons above given ; also because hearsay and because indicating the partiality of the witness.)

(Counsel for complainant requests permission from defendants' counsel and from the defendant, Mr. Gunther, here present, to have the pavement referred to—that part which is uncovered—dusted off and a photographic view thereof taken at the expense of complainant.)

(Defendants' counsel states that neither he nor Mr. Gunther will object to see the complainant sweep his pavement, and that he cannot withhold his permission to have the pavement photographed, but requires reasonable notice of the time when such process of sweeping and photographing is to be carried on, in order that Mr. Gunther may be present; but this permission does not include any right whatever to trespass on Mr. Gunther's property, except the right of sweeping the same.)

(Counsel for complainant says that, in order to take such picture, it will be necessary to lift off the panel or fence railing, and therefore desires permission to do so.)

798 (Defendants' counsel replies that he is instructed by Mr. Gunther to inform the complainant that he, Mr. Gunther, will remove as much of the fence as was removed when Exhibit 19 was taken at the expense of the complainant, to wit, for the sum of five dollars, provided that notice be given in due time and the above five dollars paid in advance.)

(Counsel for complainant says that, although the expense of the removing and replacing the fence will probably not cost more than twenty-five cents, the complainant hereby agrees to give the defendant that amount of money, five dollars, in advance for the removal and replacing of said fence.)

(Counsel for defendants here withdraws the offer last made by him, and all permission to interfere with Mr. Gunther's fence unless the complainant will amend the foregoing statement by erasing from it the objectionable words, "although the expense of removing and replacing the fence would probably not cost more than twenty-five cents," which reflect discreditably on the reasonable demands of Mr. Gunther.)

(Counsel for complainant consents to that erasure and requests, further, that defendant take off, temporarily, at the expense of complainant, all the ornaments and blocks from said pavement which can be carried by two men.)

(The last request of complainant can only be granted by the defendant on the terms mentioned in reply to a similar request at the last examination, after answer 111.)

(Counsel for complainant replies that the terms referred to are, practically, a refusal on the part of the defendant to such removal.)

(Defendants' counsel objects to the last statement as based on hear-

say evidence, the excessive value of the goods in question above the amount named having evidently not been ascertained by complainant's counsel.)

Re-D. Q. 115. You say in your last answer you found some cement scattered on top of the pavement; what makes you think it was cement?

A. Because it was cement. I can judge cement from dust. It looked to me like cement.

Re-D. Q. 116. What effect, if any, did such cement have upon the cracks which you call cross-cracks in your answer 114?

799 A. Because we, or I, couldn't see the cracks, because the cement was on top of it.

Re-D. Q. 117. Describe the cracks running from the fence towards Mr. Gunther's office, as to the condition you found them in, and explain their appearance.

A. You want me to describe that on a piece of paper?

Re-D. Q. 118. No; describe them in words.

A. They run longways, crooked, from the fence to the office, as I could make out—long cracks, crooked.

Re-D. Q. 119. State whether the cement which you say you found scattered on the pavement was also on those long cracks running from the fence to the office.

A. No; I have only seen it on the cross-cracks.

Re-D. Q. 120. State whether such cement was found on that part of the pavement exposed to view which was patched.

(Objected to as leading and suggestive.)

A. Yes.

Recross-examination:

Re-X Q. 121. Did you inspect that pavement alone or was anybody with you on the day of your last examination?

A. No; Mr. Schillinger was present.

Re-X Q. 122. Did you enter Mr. Gunther's premises on that occasion?

A. Yes; I did.

Re-X Q. 123. With whose permission?

A. I think I had the permission here from Mr. Gunther's counsel. I could not see it from outside of the street; I had to go in.

R-X Q. 124. Did you also step on Mr. Gunther's premises when you inspected the same on the 10th of November?

A. No; I did not; because the last time when I was there it was a kind of late; it was getting dark, and I had to go in and look closer.

Re-X Q. 125. When did I give you permission to enter Mr. Gunther's premises after the 10th of November?

(Counsel for complainant notifies counsel for defendants that he objects to the character of the cross-examination from question 121, because it seems to imply a threat or menace to the witness as if he had committed trespass in examining the Gunther pavement or stepping thereon in so doing, and reminds counsel for defendants

of X question 57 and of the request made to the witness by counsel for complainant to visit the pavement before the next examination, as found on the record.)

800 (Defendants' counsel reminds complainant of the answers given by the witness during the last examination and of defendants' objection to question 112.)

A. I think it was the last meeting when I had the permission from either Mr. Schillinger's counsel or Mr. Gunther's counsel to go up and examine the pavement.

(Recess.)

Re-X Q. 126. Did Mr. Schillinger also step on Mr. Gunther's premises when you inspected the pavement on the 14th November?

(Objected to as immaterial and irrelevant.)

A. Yes; he did.

Re-X Q. 127. How large a space did you clear on that pavement with your glove?

A. I think about two feet long and about three or four inches wide.

Re-X Q. 128. How many cracks did you find on that space you cleared off?

A. I found one crack.

Re-X Q. 129. How wide was that crack, about?

A. I don't think it is any width; it's only a crack, like the thickness of a piece of paper sticked between.

Re-X. Q. 130. How thick, about, was the cement dust which you say covered that crack?

A. It was thick enough to cover it so it couldn't be seen.

Re-X Q. 131. How wide, about, did you find the joints, which you call long cracks, that extend from the house to the fence?

A. I didn't measure them; they are wider than the cross-cracks.

Re-X Q. 132. What time of the day was it when you examined that pavement on the 14th of November?

A. I think it was about 5 o'clock of the evening.

Re-X Q. 133. Do you remember whether it was windy at that time?

A. I don't remember any wind at that time; it was a cold day.

Re-X Q. 134. Do you remember whether it rained in that neighborhood between the 6th and 14th of November?

A. I think it rained, but I ain't sure.

Re-X Q. 135. Do you remember a severe rain-storm on Friday, the 7th of November?

A. I ain't certain whether it was Friday or before; I remember we had some very heavy rain this fall, but I don't remember what days it was.

801 Re-X Q. 136. Do you as a builder know what effect rain would have on a covering of cement dust on that pavement?

A. It will wash some off; but that cement seemed to me it was put on fresh.

(Latter part of answer objected to by defendants' counsel as volunteered.)

Re-X Q. 137. Would not water when mixed with cement bind the same into a solid mass?

A. Not a heavy rain; a heavy rain will wash it off.

Re-X Q. 138. What reason have you for supposing that rain-water would affect cement different from other water?

A. When rain pours down heavy it makes a stream and washes the cement along.

Re-X Q. 139. What perceptible difference is there between cement dust and other dust?

A. The cement dust looks more of one color, while other dust is generally mixed with garbage.

Re-X Q. 140. Is that the only perceptible difference?

A. Well, cement dust is heavier.

Re-X Q. 141. Did you weigh the dust which you say you found on Gunther's pavement?

A. No.

Re-X Q. 142. Did you ever find garbage in the dust which settled on the furniture of your residence?

A. I haven't got it on my furniture; perhaps you have it on yours. I think it is only wasting time, this here.

(Answer objected to by defendants' counsel as impertinent.)

Re-X Q. 143. What kind of garbage is it which, as you say, is generally mixed with dust?

A. I have seen dust fly on the streets; there was hay and straw amongst it.

Re-X Q. 144. Will you positively swear that there was no hay and straw on Mr. Gunther's pavement when you inspected it last?

A. No; I can't positive, for I ain't sure.

Re-X Q. 145. Then you are not sure, are you, that that was cement dust and not ordinary dust by which Gunther's pavement was covered?

A. I am more sure it was cement dust.

Re-X Q. 146. Why are you more sure it was cement dust?

A. You can see that on the color—what is cement and what is not cement.

802 Re-X Q. 147. What was the color of that dust?

A. Blue, I guess.

Re-X Q. 148. Why do you say "I guess?" Are you not sure it was blue?

A. I thought that was sufficient.

(Answer objected to as not responsive, and question repeated.)

Re-X Q. 149. Re-X Q. 148 repeated.

A. I say, then, sure.

Re-X Q. 150. Is Mr. Gunther's cement pavement also blue?

A. Not so blue as if it was new. If it was new it would look like cement.

Re-X Q. 151. Did not Mr. Schillinger, when you inspected that pavement with him, say to you that that was cement dust on Gunther's pavement, or words to that effect?

A. No; I found that out first. I looked for a crack which I thought I had seen before, and found that closed up.

Re-X Q. 152. Did you find any patches on that pavement on the 14th November?

A. I have not seen any then. I think they had been scraped off or something done with it, and on one side I could not see because the ornaments was on.

Re-X Q. 153. Can you point out on the photograph, Exhibit 19, on the pavement there exposed, any place or places where you think that pavement is or was patched?

A. Yes; I guess I can.

Re-X Q. 154. Please mark with ink wherever you think there was a patch.

(The witness makes a cross at one place.)

A. I have done so. There are some here (pointing to the right-hand side of the pavement) which I could not see because the pavement is covered with ornaments.

Re-X Q. 155. Is it, in your opinion, possible to scrape away from a cement pavement a patch whereby the same was repaired?

A. Yes; if it is badly done it can be scraped off.

Re-X Q. 156. What was the nature of the patches which you swear you saw on Mr. Gunther's pavement?

A. I don't recollect.

Re-X Q. 157. May they not have been accidental spillings of cement from a pail or vessel that was carried over the pavement or standing thereon?

A. No, sir.

803 Re-X Q. 158. Why not?

A. They looked to be put on particularly.

Re-X Q. 159. But if the patch, for instance, which you say was at the place where you marked a cross in Exhibit 19 had been applied to fill a hole in the pavement or repair the same such patch would still be visible, would it not?

A. No; I guess not. If it is a hole, of course; but if it is not a hole, a crack, it can be scraped off.

Re-X Q. 160. Would not the patched crack be visible?

A. What does "visible" mean?

Re-X Q. 161. Did you not know what it means when you answered X Q. 159?

A. I did not; I answered it as good as I understood it.

Re-X Q. 162. What caused you to go to Mr. Baab, the photographer, as stated in your testimony to-day?

A. Mr. Schillinger asked me to go along and hear what he has to say about that picture which is here present—I mean of that pavement.

Re-X Q. 163. Are you now reading over your testimony given in this case?

A. I have read it for passing time; it is getting lonesome here.

Re-X Q. 164. Please mark on Exhibit 19 the place from which you cleared away the dust on the 14th November. Mark the letter O.

A. It is somewhere about two foot and a half from the fence in—crossways—where I have marked the letter O.

Re-X Q. 165. In which direction does the crack extend from the letter O?

A. Left and right—or east and west, you might say.

Re-X Q. 166. Do you positively swear that the photographer told you or Mr. Schillinger that shade was over that place where the crack was?

A. Yes; I can swear what he said. He said the cross-cracks he could not take, because the shade of the sun was right over that place, and they wouldn't come out in his taking; I mean to say them places what is cross-cracks.

Adjourned to Friday, November 21st, 1873, 11 a. m.

804 FRIDAY, *November* 21*st*, 1873.

Present: Counsel for both parties.

Examination of LORENZ WEIHER continued:

Re-X Q. 167. When did you go to that photographer Baab?

A. The same day in the evening.

Re-X Q. 168. At what time about?

A. I think it was after 5 o'clock.

Re-X Q. 169. Who was with you besides Mr. Schillinger?

A. Nobody.

Re-X Q. 170. Were you there again since the 14th November?

A. I have been there only once.

Re-X Q. 171. Relate all that occurred at the time of your visit to Mr. Baab's place.

A. Mr. Schillinger asked him how he had taken this pavement picture. He said he took it from one side, and the way he has taken it he couldn't get out no cross-tracks on his photograph, because the shade from the sun fell right over it and they wouldn't come out. He said then if it is necessary he would come here and explain the matter; that he or any other photographist could give full satisfaction of the thing. He said he could take it better if all the ornaments were off.

Re-X Q. 172. What did you say on that occasion?

A. I haven't said anything.

Re-X Q. 173. Did not Mr. Schillinger quarrel with Mr. Baab at that time?

A. No, sir; not at all. Mr. Schillinger said that perhaps he would have them taken over again, and Mr. Baab was very much pleased; said he would take them just as well for Mr. Schillinger as Mr. Gunther.

Re-X Q. 174. How long did that interview last?

A. About five minutes.

Re-X Q. 175. Was it already dark when you came to Mr. Baab's?

A. It was not quite dark.

Re-X Q. 176. Did you see a photograph like Exhibit 19 at Mr. Baab's place?

A. No; I seen nothing.

Re-X Q. 177. Did you go to Mr. Baab's directly after inspecting the pavement or did you stop at any place meanwhile?

A. No; we haven't stopped anywhere; we went there right directly.

Re-X Q. 178. How far is it from that pavement to Mr. Baab's place?

A. I haven't measured the feet. Mr. Baab is on 86th street, near Third avenue, and Mr. Gunther's office is near Lexington avenue, in 86th street.

805 Re-X Q. 179. Did you request Mr. Schillinger to go with you to inspect that pavement?

A. No, sir; I did not.

Re-X Q. 180. Did he request you to go with him?

A. No; he did not either.

Re-X Q. 181. Are you paid for testifying in this cause?

A. No; I ain't paid; I wish I would get about $15 a day.

Re-X Q. 182. Why, then, do you testify?

A. Because I am called as a witness.

Re-X Q. 183. Who called you?

A. Mr. Schillinger and his counsel.

Re-X Q. 184. Do you owe any money to Mr. Schillinger?

(Objected to as immaterial.)

A. What I owe Mr. Schillinger I gave him a note for. That was business transaction, and I consider just as good as if I did not owe him anything, because I have to pay the note.

Re-X Q. 185. What is the date of that note, the amount for which it is drawn, and when is it due?

A. I have no recollection of the date. The amount was about three hundred and seventy-two, seventy-six—I don't remember which. I have got that in my book. It was drawn for two months, I think.

Re-X Q. 186. When, about, was it drawn, do you know; in what month?

A. It was about commencing this month.

Re-X Q. 187. Did the drawing of that note or the business to which it relates have anything to do with your not appearing here as a witness at the times appointed?

A. No, sir; not at all.

Re-X Q. 188. What do you owe Mr. Schillinger that amount for?

A. It was for work done at 185 Mott street and a house 234 East 45th street.

Re-X Q. 189. When was that work finished?

A. September and October last.

Re-X Q. 190. Is that all the money you owe to Mr. Schillinger?

A. That's all.

Re-X Q. 191. Does Mr. Schillinger owe you any money?

A. No, sir.

Re-X Q. 192. In the agreement, Exhibit 16, it is stipulated that you should "flag the sidewalk in front of the lot mentioned in said agreement." Did you flag that sidewalk as per agreement; and, if yea, do you know who paid for it?

806 A. It was afterwards agreed by Mr. Gunther that he would flag it himself.

Re-X Q. 193. Where is that agreement?

A. It was no agreement made in that effect, because I—a written agreement, I mean—because I agreed after to finish the yard and put it in good order, put in wash posts and all such things.

Re-X Q. 194. What do you mean by all such things?

A. Nothing else; level the yard; it wasn't level exactly; form a grass plot.

Re-X Q. 195. Did Mr. Gunther never call on you or request you to pay for that flagging according to agreement, Exhibit 16?

A. Not as I remember, after I agreed to finish the yard for him.

Re-X Q. 196. Did you never receive a letter or letters from Mr. Gunther and also from his lawyer requesting you to pay for that flagging after the deed, Exhibit 17, had already been executed?

A. Not that I remember.

Re-X Q. 197. Was not your refusal to pay for that flagging because of the altercation between you and Mr. Gunther, referred to by you in your testimony?

A. Not as I know about.

Re-X Q. 198. What, then, was the cause of your ill-feeling towards Mr. Gunther?

A. I never had any ill-feeling against him.

Re-X Q. 199. What was the cause of that quarrel with him in the summer of 1872?

A. I don't recollect the particulars.

Re-X Q. 200. What is the value of a set of wash posts like those put in Mr. Gunther's yard?

A. I forgot about that.

Re-X Q. 201. What is the value of that flagging?

A. I don't know either.

Re-X Q. 202. Is it not customary that a person, in selling a new house and lot, properly fit up the yard without special agreement?

(Objected to as immaterial.)

A. That's more than I know about agreements.

Re-X Q. 203. How many houses have you sold within the last eight years?

A. About seven or eight.

Re-X Q. 204. Do you not know that the cement in our markets is always grey or brown, and never blue?

A. I think I seen it different colors; I mean imported.

807 Re-X Q. 205. Do you know the name of any imported brand of cement that is blue? I mean where the cement is blue.

A. I know the name by Portland cement, and not the extra qualities by name.

Redirect:

Re-D. Q. 206. You said yesterday, answer 147, that the color of the cement or cement dust was "blue, I guess." Look at the contents of the bottle I now hand you and state, if you know, what its contents are.

Objected to as suggestive, intending to invite a contradiction, the contents of bottle handed to witness being grey and the quotation of answer 147 in this direction, therefore, incompetent.)

A. It is cement. It is just the color I meant to say yesterday, and, from my judgment, I must say it is bluish.

(Counsel for complainant offers in evidence the bottle shown to the witness and its contents, and the same is marked Weiher Exhibit, R. E. S., Ex'r.)

Re-D. Q. 207. State how the color of this cement, "Weiher Exhibit," compares with the color of the cement or dust which you have stated you found upon the Gunther pavement.

(Same objection.)

A. I think it looks like it.

Re-D. Q. 208. You say, in answer to X Question 79, as follows: "X Q. 79. Was that your house about which that contract, Exhibit 16, was made? Answer. I think it was." Explain more fully what property you had in that house, and who, if any one besides you, was interested in it.

(Objected to as incompetent, as not touching matter brought out in Re-X examination.)

A. The house was mine, because I had the money and built it and paid for the house, and my wife owned the lots; so we both was interested in it; and I think if I build a house and pay for it, I think it's my own.

Recross-examination:

Re-X Q. 209. In answer 149 you swear that the cement dust on Gunther's pavement was blue, sure. Are you sure this cement in Exhibit Weiher is blue? Remember that you testify on your oath.

808 A. Yes; I think it's bluish. There is blue about fifty colors, and I think it's some of a blue color.

L. WEIHER.

Subscribed and sworn to before me October 30th, 1873.

R. E. STILWELL, *Ex'r.*

Adjourned to Tuesday, November 25, 1873, 1 p. m.

TUESDAY, *November* 25, 1873—1 p. m.

Present: Counsel for both parties.

JULIUS H. TYNDALE, called and sworn as a witness on the part of complainant, deposes and says as follows:

Q. 1. What is your name, age, residence, and occupation?

A. Julius H. Tyndale; age, 30 years; residence, 121 Rivington street; occupation, physician and surgeon.

Q. 2. Do you know John J. Schillinger?

A. I do.

Q. 3. Have you examined, at the request of Mr. Schillinger, a piece of cement pavement in front of a house or office in East 86th street, between Lexington avenue and Fourth avenue; and, if so, when?

A. I did; on last Sunday week—on the 16th of this month.

Q. 4. Do you know at whose premises that pavement is?

A. I was informed they were the premises of Mr. Gunther, and there was a sign in front of it of "Artificial Stone Works."

Q. 5. State whether or not you saw any cracks in that pavement; and, if yea, please state their direction and their number and their appearance, to the best of your recollection.

(Objected to as leading and suggestive.)

A. I did notice cracks. The direction of some is from north to south and others from west to east. The number noted by me were nine, taking both directions. There were three cracks from north to south—that is, running from the house or shop to the pavement or fence, the other six taking the first cracks from the east side from the house or shop to the pavement. There was an irregular crack running from the upper half of the first crack from the east. Another one was in the lower half of that first crack, commencing from the east. Again, there was in the lower part of that first crack another irregular crack running towards the west
809 and its base corresponding to the crack last mentioned. From the second crack of those running from north to south and counting from the east an irregular crack in the upper portion of this running to the east. From the third of the cracks, counting from the east, which run from north to south, the crack runs both east and west—that is, both east and west from the same spot and starting from an island formed by all the cracks uniting there. There are in the middle crack of the three running from north to south little islands—that is, detached pieces. The distances from the first one of the eastern ones running north and south and the third or western one to east and west, respectively, is not so great as the distance from the middle one of the cracks running north and south to either one of the cracks running north and south, there being monuments and stones piled up on the eastern and western extremities.

Q. 6. In what direction do the islands, as you call them, run?

A. In one, certainly, and the others, to the best of my recollection, their longest diameter corresponds to the direction of the cracks running north and south.

Q. 7. Can you make a diagram with pen and ink of that pavement, or that portion exposed to view when you saw it, so as to show the different cracks you have mentioned? And, if you can, please do so.

(Objected to as immaterial.)

A. I do so, to the best of my ability.

(The witness thereupon makes a sketch, and the same is offered in evidence by counsel for complainant and is marked Tyndale Exhibit, R. E. S., Ex'r.)

Q. 8. In what position with reference to the cracks running north and south are the islands to which you refer in your answer to question 6? Please hear the officer read to you that question and answer.

(Objected to as suggestive unless question and answer 6 are not read to witness.)
(Counsel for complainant requests the officer not to read that question and answer to the witness.)

A. The principal island is in the most western of the cracks running north and south, together with the cross-cracks starting from that same crack. There were other smaller islands, the exact position of which I did not note down, corresponding with the cracks running north and south.

810 Cross-examination:

X Q. 9. Are those all the cracks on that pavement that are shown on your sketch?
A. They are the only ones I noticed, not feeling at liberty to sweep it, cleanse it of sand and dust that were on certain smaller portions.
X Q. 10. How long a time were you at that pavement inspecting it?
A. About twenty minutes.
X Q. 11. Were you alone or was anybody with you?
A. Mr. Schillinger was with me.
X Q. 12. Anyone else?
A. No one else.
X Q. 13. What time of day was it?
A. Between four and five o'clock in the afternoon, to the best of my recollection.
X Q. 14. Was it still quite light, so that you could see everything distinctly?
A. It was.
X Q. 15. Do you know a person by the name of Philip Krauth?
A. I do not.
X Q. 16. Did you step on that pavement while inspecting it?
A. I did.
X Q. 17. What did Mr. Schillinger tell you with respect to that pavement when inviting you to inspect it?

A. He asked me to look at a certain pavement in 86th street and notice any deficiencies in it that might occur to me.

X Q. 18. Did he not tell you anything about the testimony that had been given in this case and about a photograph that had been produced?

A. To the best of my recollection, I asked him why the place was not officially inspected, and he answered that a photographic view had been taken of it.

(Answer objected to as not responsive and question 18 repeated.)

X Q. 19. Question 18 repeated.

A. He told me nothing definite that is now in my mind; that is the reason I answered this way.

X Q. 20. Did you, in answering question 6, where you describe these cracks, refer to a pencil memorandum?

A. I did.

X Q. 21. Who made that, and when was it made, and where?

A. I made the notes on that same day on the spot. I made a rough diagram the same evening in my office.

811 X Q. 22. Can you produce that memorandum and diagram?

A. Well, I consider that private, there being another note of something else on that same piece of paper.

X Q. 23. Is there a private note on that diagram I saw you refer to?

A. Yes, sir; in reference to my practice.

X Q. 24. Is that the diagram you made that same evening in your office?

A. The same; yes, sir.

X Q. 25. Where is the one you made on the spot?

A. I stated that I made notes on the spot. I meant written notes.

X Q. 26. Where are those notes and will you produce them?

A. They are on the other side of the same sheet of paper, and for the same reason I would not like to give them.

X Q. 27. What private note is that on such sheet?

A. In reference to my practice.

X Q. 28. How many lines does it occupy? Please look and answer.

A. Eight lines, neither of them totally written out.

X Q. 29. Does that note contain the names of any of your clients or patients?

A. Of two.

X Q. 30. Will you be so kind as to strike out those names and make them illegible with pen and ink and then produce the paper?

A. I would not, because it might compromise one of my patients.

(Counsel for defendants here gives notice to complainant's counsel that he desires the production of that paper from the witness, and that he will, unless said paper is produced, now and here request the examiner to adjourn this examination until a motion can be made before one of the judges of this honorable court for a *subpœna duces tecum* to enforce the production thereof.)

(Counsel for complainant asks the witness if he can make a literal copy now and here of the notes and diagram referred to, leaving out the private memorandum.)

(Counsel for defendants requests that tracing paper be given the witness for the above purpose, so that the lines of the diagram may be correctly reproduced in his presence.)

The witness, being asked, replies:
A. I will do so.

(The witness here shows the notes and diagram referred to to defendants' counsel.)

812 X Q. 31. I have copied your notes just showed me. Look at my copy, and state whether it is a correct reproduction of your pencil memorandum.
A. It is. I also took mental notes.

(Defendants' counsel requests the examiner to copy these notes into the record, and requests also that he adjourn this examination to a convenient date, to No. 131 East 86th street, to further cross-examine this witness.)

(To which counsel for complainant consents.)

The following is a copy of the memorandum:

2 on 1st fl: E
2 on 2nd " E lower
Corresps with lowest
of 1st
Islands
Long cuts
irregular
Betw 3rd & 4th
Split from island.

Adjourned to 131 East 86th street, Friday, November 28th, 1873, 1.30 p. m.

FRIDAY, *November 28th*, 1873.

Present: Counsel as before, at 131 East 86th street.

JULIUS H. TYNDALE.

Cross-examination resumed:

X Q. 32. Is the pavement in front of this office the same which you say you have examined on Sunday, November 16th?
A. It is.
X Q. 33. Will you please examine it once more and ascertain, with the aid of the rule I now hand you, the distance of the crack which I mark "*a*" on your "Exhibit Tyndale" from the front of the house, and also its length; also the distance of crack "*b*" from the house, and its length?
A. I will, with the understanding that I do not know whether the conditions are the same as on the 16th.

813 X Q. 34. Have you examined, as requested, and what is the result of your examination?

A. I have. The position of the island with cracks, as seen on the 16th, is not so clear as at that time, and I cannot possibly determine it.

X Q. 35. Did you measure the crack "*a*" now; and, if so, how long is it?

A. I did not measure it; for the same reason as stated in the previous answer.

X Q. 36. Did you measure the crack "*b*" now; and, if so, how long is it?

A. I did not, for the same reason as stated in the previous answers.

X Q. 37. Did you to-day see the crack "*b*" on the pavement?

A. I saw a line which I took to be the same, but am not positive, not having measured the distance from the house on the 16th inst.

X Q. 38. Will you positively swear that the line you saw to-day, and which starts eastward from the most westerly joint of the pavement, is a crack in the pavement or a rupture thereof?

A. I am not positive, as I did not examine it with my hand.

X Q. 39. Please examine the pavement once more and then answer the preceding question again.

A. I take it to be a crack.

X Q. 40. Do you mean that your line "*b*" on "Exhibit Tyndale" indicates a rupture on the pavement?

A. I take it to be a superficial rupture.

X Q. 41. What do you mean by "superficial?"

A. Anything having no great depth.

X Q. 42. How deep, about, do you take the rupture which you consider the line "*b*" to be—as deep as a half an inch or one quarter of an inch, or how?

A. I should say about a twentieth of an inch, to the best of my knowledge.

X Q. 43. Will you positively swear that it is as much as one-twentieth of an inch?

A. I can't positively swear.

X Q. 44. On your memorandum, which has been copied by me during your last examination, the letters "fl" appear on the first line. Do they mean flag or what?

A. They mean flags as irregularly divided by the cracks running north and south.

X Q. 45. Were you requested by Mr. Schillinger or by others not to use the word "flag" or "flags," when giving this testimony?

A. I was asked whether I considered them cracks or regular divisions made by hand.

(Answer objected to by defendants' counsel as not responsive.)

814 X Q. 46. Question repeated.

A. Not directly.

X Q. 47. But indirectly were you?

A. As an answer to my question whether that was the issue Mr. Schillinger said, as before stated, that it was for me to state whether I considered them cracks or divisions made by hand—leaving it to my judgment.

X Q. 48. Did Mr. Schillinger also request you not to call the north and south divisions joints but cracks?

A. He did not request me; he asked me to remember that I had found them to be cracks.

X Q. 49. What, in your opinion or to your knowledge, is the difference between a joint and a crack?

A. The way I judge of it was that a joint could not have been worked on either side of a stone as to bring about such a perfect union and on account of the islands.

X Q. 50. What do you mean by a "perfect union?"

A. That each little prominence and depression on one side of the stone was calculated to fit each little depression and prominence on the one side by another stone.

X Q. 51. What do you call the color of that pavement?

A. I call it a dirty grey.

X Q. 52. You would not call it blue, would you?

A. There is a tinge of blue in the cleanest spots.

X Q. 53. Is not the centre pavement clean?

A. Some parts are covered with a rough-grained white substance.

X Q. 54. Did you ever inspect any other cement pavement besides this; and, if so, which?

A. I did not inspect any pavement. Mr. Schillinger showed me another pavement, to which I paid no particular attention. It was on the Third avenue, but what cross-street I don't know.

X Q. 55. Did Mr. Schillinger point out to you the cracks on this pavement or what you believed to be cracks?

A. No, sir; I took note of the cracks myself of my own accord.

X Q. 56. Did he not point them out to you this afternoon while you were examining the pavement?

A. I was under the impression that he was under a discussion with one of you gentlemen. I certainly paid no attention to it.

X Q. 57. Of what country are you a native?

A. Of this country.

X Q. 58. Are you the family physician of Mr. Schillinger?

A. I consider myself so.

X Q. 59. How long have you been that?

815 A. I think about two years.

X Q. 60. When first did you hear of this suit and through whom?

A. Some months before the 16th inst. I knew that Mr. Schillinger had some patent difficulty, but was not aware of my knowledge of this suit until the 16th.

X Q. 61. Who told you about it some months before?

A. I can't positively remember; I only have an impression.

X Q. 62. What reason did Mr. Schillinger give you when asking you to come and inspect this pavement?

A. He gave me no reason at all at the time, but subsequently asked me if I was willing to testify as to what I had seen.

X Q. 63. Did he not ask you to go with him and ask you to notice any deficiency you might detect in that pavement?

A. I really do not remember the tenor of that request. The meeting was accidental.

X Q. 64. Don't you remember this much: That Mr. Schillinger asked you to go with him and look at a certain pavement in 86th street and notice any deficiency in it that might occur to you?

A. In the first place, Mr. Schillinger only proposed a walk, and, coming to this place, drew my attention to it in language which I do not recollect—that is, I took no notice of the language at the time so as to remember it.

X Q. 65. Did you go with Mr. Schillinger to a certain photographer by the name of Baab, in Third avenue, near 86th street?

A. I did not.

Direct resumed by Mr. VAN SANTVOORD:

Q. 66. Please look at the westernmost crack in this pavement in front of this office and state whether or not the same can to-day be seen as distinctly as, to the best of your recollection, it appeared to you when you first saw it on the 16th of this month?

(Objected to as suggestive and leading.)

A. It is not, as the sun was shining on the 16th November and it is cloudy to-day.

(Counsel for defendants objects to this answer, as the witness gave it without inspecting the pavement after question 66, but remaining on his seat, from which the crack in question could not be seen.)

Q. 67. How often have you been out of this office this afternoon to look at the pavement in front of it?

A. Twice.

816 Q. 68. Will you please inspect the same, especially with reference to the westernmost crack running from the fence towards the house, and then answer question 66 again?

A. I will. To the best of my knowledge it is not as clear as it was on that day.

Q. 69. Do you know from observation personally whether or not cracks in a cement pavement are made more obscure or more distinct by being made wet with rain or water when seen a few hours after being made wet?

(Objected to as suggestive and without foundation.)

A. I do not know from my own observation.

Q. 70. You was asked in X question 44 about a memorandum which was copied by counsel for defendants. Is the paper now shown to you the memorandum copy referred to?

A. It is.

(Counsel for complainant offers the same in evidence, and it is marked "Tyndale Exhibit 2, R. E. S., Ex'r.")

(Counsel for the defendants objects to the offer in evidence of paper referred to as immaterial, because the notes thereon are already copied into the record, while the offer is incompetent as regards the sketch on said paper, it not having been shown or appearing that such sketch represents anything material to the issue in this cause.)

Q. 71. Please take "Tyndale Exhibit" with you out to this pavement and compare the same with the pavement as it appears now, and designate thereon by crosses the places where any islands occur along the north and south cracks; and also observe if any other north and south crack or cracks can be seen in whole or in part, so that you can be prepared to designate its position and character. Please take with you, also, the photograph, Exhibit 19.

(The latter part of question objected to.)

A. I have done so.

Q. 72. State if you observed any other north and south cracks besides the three which you made on the "Tyndale Exhibit;" and, if so, please designate its position on such exhibit and mark any additional north and south line which you make with the letter "T" at the ends thereof.

(The like objection.)

A. I have done so.

817 Q. 73. State whether or not the line you have designated "T" extends in said pavement to the fence.

(The like objection.)

A. It extends to within twenty-one inches of the fence.

Q. 74. State whether the line "T" is wholly exposed to view or otherwise in the pavement.

(Objected to as incompetent.)

A. The upper part of it is lost under the support of a monument, above which it is no longer seen.

Q. 75. I asked you while present with you just now on that pavement to measure the width of the several parts which are separated by the north and south cracks—that is to say, by the cracks which run northerly. Did you do so? And, if yea, please give the measurements you made, commencing on the west side and going easterly.

(Same objection.)

A. I did so. From the western edge of the pavement to the first crack, thirty-five inches; from the first to the second crack, thirty-one inches; from the second to the third crack, forty-two inches; from the third to the fourth crack, which is the line "T T," forty-three inches; from the crack "T T" to the eastern extremity of the pavement, thirty-nine inches.

Q. 76. Designate on Defendants' Exhibit 19, if you can, the place

where the crack or line "T T" is in said pavement; designate the same by a reference to any object which is shown in said exhibit.

A. It runs from the base of an iron bar supporting a column marked "*e*"—the right-hand one of three columns—irregular upwards into a space which is dark here on the picture.

Q. 77. Designate by the letter "C" on the "Tyndale Exhibit" the sides or parts of the pavement which are covered by monuments or ornaments.

(Objected to as immaterial.)

A. I have done so to the best of my ability.

Q. 78. State whether it would be possible to remove the monuments and ornaments which now cover a portion of said pavement, without injury to them, by the united labor of two men.

(Objected to as calling for an opinion, and as incompetent.)

A. A great number of them could be so removed; others could be shifted, and others, again, could not be moved, in my opinion.

818 Q. 79. If those which, you say, could not be removed were made in sections, do you say that they could not then be removed?

(Same objection.)

A. Some could and some could not, being seemingly of one piece.

Cross resumed:

X Q. 80. Is part of the crack which you mark "T T" covered with ornaments or monuments?

A. It is lost under the support of a monument not very wide and not visible on the other side.

X Q. 81. Do you mean to say that the entire length shown by you in "Exhibit Tyndale" is exposed to view?

A. It is as I marked it down.

X Q. 82. Do you swear that the base of that rod on the easterly-most pillar "*e*" is twenty inches from the post?

A. I said twenty-one inches, as I so got it by measurement. I did not note it down, and request that I may be permitted to measure it again.

X Q. 83. Are those places which you designated with the letter "*x*" on the "Tyndale Exhibit" all the islands that you could find on the pavement?

A. They were.

X Q. 84. Please measure again the distance between the base of the iron rod on the easterlymost post "*e*" and the fence.

A. The distance from the end of the crack to the post is twenty-one inches, and from the iron rod to the post is 19½ inches.

Direct resumed:

Q. 85. State whether the cracks on said pavement which run northerly and southerly are in straight lines or crooked.

(Objected to as incompetent and suggestive.)

A. They are crooked.

JULIUS H. TYNDALE.

Subscribed and sworn to before me this 28th November, 1873.

R. E. STILWELL,
Examiner, &c.

819 FRIDAY, *December 19th*, 1873.

Present: Counsel as before.

THOMAS S. GREEN, being duly sworn as a witness on the part of complainant, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. Thomas S. Green; age, 43 years; residence, 88th street, south side, between First and Second avenues; occupation, policeman of this city.

Q. 2. How long have you been a policeman of this city?

A. I was appointed in 1857, third day of July; I resigned November 1st, 1864, and went into the United States service during the war; was reappointed the 26th day of May, 1866, and have been a policeman ever since.

Q. 3. Where was your beat as a policeman in the year 1869?

A. I had the north side of 79th street, the south side of 86th street, and the cross-streets from Third to Fourth avenues between 79th and 86th streets. That was my regular post, but during the summer months I often had from 79th to 94th streets, which made two posts doubled.

Q. 4. Do you know of any cement pavement being laid upon any premises in 86th street between Third and Fourth avenues; and, if so, can you state where it was and when laid?

A. Yes, sir; as near as I can remember, it was either August or September; I can't say which month, but it was in the latter part of the summer of 1869. It was on the north side of 86th street; I don't know the number. It was an artificial stone-work manufactory; it was Gunther's—that is, I was told it was Gunther's.

Q. 5. Please state what you know about that cement pavement and how you came to know anything about it.

A. I was sent by Sergeant Brooks down to this Mr. Gunther's place to see what I could get a barrel of cement for, he wanting to buy some. I told him I was not acquainted with the man, but would go down and ascertain what I could get a barrel for. I went down and saw, through the cracks of the board fence, a man working, laying the sidewalk in front of the office. I tried the gate; it not being fastened, I walked in. I asked this man that was working where Mr. Gunther was. He said he didn't know, but thought he was down town. I asked him what time he thought he would be back. He said he didn't know; some time in the afternoon. The man that was at work there was just moving a joist that he had filled up to. He had about six feet of the sidewalk laid, and as he

moved the joist, the cement that he had filled up to it followed the joist or crumbled down as the joist was moved away from it to form another stretch. He moved the joist about two feet six inches, as near as I can tell. Then there was another man who brought
820 some cement to him in pails and commenced filling up the space left where he had removed the joist. I stood looking at him a half an hour before I went out, and I asked him if the frost would not affect it. He said, "No; he git so hard like a stone." That is all I know in regard to that; I didn't wait any longer; I had to go back to the station-house.

Q. 6. What part of the cement pavement had been laid when you went into the yard?

A. He commenced at the left, in front of the office, west, and worked towards the right, from west to east.

Q. 7. In which direction did the joist you speak of lay?

A. Laid lengthways from the office to the sidewalk, that would be from north to south.

Q. 8. You say about six feet of the sidewalk had been laid. Explain from which direction you reckon about these six feet of the sidewalk.

A. From where he commenced to where he moved the joists from, taking the full length from the office to the sidewalk.

Q. 9. State whether or not there were any divisions in the part of the sidewalk which had been laid when you first saw it.

(Objected to as immaterial.)

A. No, sir; it was perfectly smooth.

Q. 10. Did you see any marks or lines or joints in the part that had been laid?

(Same objection, and as leading.)

A. No, sir.

Q. 11. Did you afterwards see that cement pavement? And, if so, state when first.

A. I saw it after the fence was taken way—not till the fence was taken away, which I should judge was ten days; it may not be so long; I couldn't say, but I know it was a short time after the pavement was finished.

Q. 12. Describe its appearance when you first saw it or noticed it after it was finished.

A. Well, I don't know as I took any particular notice, except that I thought it made a very nice, smooth sidewalk.

Q. 13. Do you recollect whether at that time it was in one piece or more than one piece?

(Same objection as to question 10.)

A. I don't recollect of seeing any marks or cracks in it at that time, but as the cold weather came on I noticed some cracks
821 and made the remark to a man by the name of Coogan, another policeman, that I thought that would not stand the frost, for I saw it commencing to crack.

Q. 14. Are you subpœnaed to attend here as a witness?
A. Yes, sir.

Cross-examination by A. V. BRIESEN, Esq.:

X Q. 15. In which direction did the separations or cracks, which you say you noticed in that pavement, extend?

A. The largest ones extended from the sidewalk towards the office; there are smaller ones branching off.

X Q. 16. You say there are smaller ones branching off. Do you mean to say that they were there when first you noticed any cracks in the pavement?

A. Not all of them. As the cold weather became more severe there were several small cracks running in different directions.

X Q. 17. Is that pavement still there, to your knowledge?

A. A portion of it is. In front of the steps there is a place where it seems as if something heavy had fallen onto it and broken and the portion that was broken had been dug out.

X Q. 18. But what remains there now is to your knowledge, the same that was laid in 1869?

A. As far as I know, it is the same.

X Q. 19. When last did you see that pavement?

A. Some time last week; I can't say the day; I think it was Thursday.

X Q. 20. Describe its condition when last you saw it.

A. I could only see a portion of the centre. On each side he had some mantles or tombstones or artificial stones. I saw two cracks running from the sidewalk to the office, and I saw some few cracks running in various directions, as near as I can describe it.

X Q. 21. Did you go there alone when last you saw it, or was any one with you?

A. I went alone.

X Q. 22. What caused you to go there?

A. Mr. Schillinger had left one of his cards at the station-house and requested me to call up and see him. He told me that Mr. Coogan had told him that I knew more about the laying of that sidewalk than any one that he knew. I told him that I didn't know much about it. I described and told him what I did know, but I didn't tell him how I came to know it—about the sergeant sending me there. Then I went and looked at it to see if it was the same sidewalk that had been laid there before. I then
822 saw a hole by the step in front of the office, I should think about fourteen inches long, nine or ten inches wide.

The witness being shown a photograph, he is asked:

X Q. 23. Do you know what this represents?

A. Yes, sir; Gunther's Artificial Stone Works.

Photograph offered in evidence and marked "Defendants' Exhibit 19*, R. E. S., Ex'r."

X Q. 24. Does this photograph, Exhibit 19*, represent the pavement in front of Gunther's office and the monuments, etc., standing

thereon in the same condition as when you last saw that pavement, as far as you remember?

A. I don't see the hole in it in front of the steps.

X Q. 25. But otherwise do you find it the same?

A. I think they have been moved from this side (pointing to the west). I saw only two cracks running from the sidewalk to the office.

X Q. 26. Please mark on that photograph, Exhibit 19*, the letter G wherever you noticed any side cracks.

A. Well, I don't know as I could mark any place in particular positive. I could if I were to go and measure the distance, but I can't mark positively where they are on that photograph.

X Q. 27. Have you ever noticed and observed any other cement pavement besides this one?

A. I have; in front of Dunn's carriage factory, northwest corner of 87th street and Third avenue, and I saw one laid on the northeast corner of Avenue A and 87th street and one in front of 1491 Third avenue, northeast corner of 84th street.

X Q. 28. Did you ever observe the Schillinger cement pavement in the city-hall park, opposite this office?

A. Not particularly; I noticed it was cement.

X Q. 29. Will you please inspect that city-hall pavement and ascertain whether or not many of the blocks of the same are cracked?

(Objected to as not cross-examination.)

A. I will.

X Q. 30. Have you examined the cement pavement in the city-hall park? And, if so, please answer 29.

A. I have examined a portion and find some of the blocks cracked.

X Q. 31. Did you ever see a cement pavement laid in blocks or otherwise that was not cracked after having been in use some time?

A. All the cement pavement that I ever saw laid had more or less cracks in it.

823 X Q. 32. You say that the cement crumbled where the joists had been removed in laying Gunther's pavement. Please explain more fully what you mean by that.

A. I mean that the joist was not left there long enough for the cement to set or grow hard, to hold itself together. When the joist was moved away from it the top part of the edge fell down and did not leave the square edge of the cement that it would have been if the joist had remained long enough for the cement to harden. That is my idea.

X Q. 33. From what do you know that the cement would have hardened or set if the joists had remained longer?

A. I once laid a cellar floor with cement and sand in my father's cellar, and I found that I had to finish it along smooth and even as I went, for the cement would harden so that it would be difficult to finish it smooth.

X Q. 34. Did you use a joist in laying that cellar floor?

A. No, sir; I used a plank, and had my knees on it. I commenced by taking a stretch across the cellar about three feet wide

I laid the cement up to the plank, took a straight edge and levelled it off, and then moved my plank about three feet further, filled up the space between the cement I had laid and the plank, and smoothed that off even with the edge, and so kept on until I had finished the cellar.

X Q. 35. Did you allow the cement to set before removing the plank each time?

A. No, sir.

X Q. 36. When was that pavement laid by you, and where?

A. About 1850, in a cellar in the town of Rye, Westchester county, New York, in my father's house.

X Q. 37. Why did you not allow the cement to set before removing the plank?

A. Because a mason there told me not to—as I laid one stretch, to go on and lay the other; it would be easier.

X Q. 38. How easier?

A. It would be easier to smooth it off.

X Q. 39. Well, did not each stretch, during the time occupied by you for smoothing it, set sufficiently to form a smooth edge when afterwards the plank was removed?

A. No, sir; as I moved the plank the cement followed it a little—that is, instead of standing straight, it crumbled down to form a bevel, and thus did not form a straight edge, so that the next stretch that I filled up right even with the stretch I filled up before, I could take a straight edge and level it smooth—fill up the space that had bevelled down.

X Q. 40. You say a mason told you not to let the cement set. Did you propose to him that you would let it set before removing the plank?

A. No, sir; I told him I was going to cement the cellar bottom and asked him in what manner I should do it, and he told me.

824 Redirect:

Q. 41. Was the proportion of the cement blocks of the city-hall pavement which you saw this morning, and which you say were cracked, large or small compared to all the blocks you saw composing the pavement?

A. The proportion that I saw cracked was smaller than the whole blocks.

Q. 42. Do you know who laid the pavements at Dunn's factory and at the other places mentioned in your answer to cross 27?

A. Schillinger laid the one on the corner of Avenue A and 87th St. and in front of 491 Third avenue, but I couldn't say, only from hearsay, that it was Gunther who laid that in front of Dunn's factory.

Q. 43. When was that cement pavement laid at Dunn's factory?

A. In the spring of 1870; I couldn't say what month.

Q. 44. Was that laid in one or more divisions?

A. It was laid in one continuous piece—no joints.

Q. 45. Did you see it while it was being laid?

A. Yes, sir.

Q. 46. How did the manner of laying it compare with the mode pursued by the man laying the pavement at Gunther's office in 86th street?

(Objected to as not redirect.)

A. Laid the same way as that was laid in front of Gunther's office, as far as I saw it laid in front of Gunther's office; that was laid the same way.

Q. 47. What became of that pavement in front of Dunn's factory?

(Same objection.)

A. It was taken up the next spring—the spring of 1871.

Q. 48. Was anything put down in place of it; and, if so, what?

(Same objection.)

A. Another cement pavement was laid.

Recross:

X Q. 49. You say about Dunn's pavement that it was laid in one continuous piece—that is, no joints. Is that description, according to your idea, also applicable to the cement pavement of which Exhibit 19 is a representation?

A. Yes, sir; that is laid without any joints.

X Q. 50. What reason have you for not calling the lines *a a*, *b b*, and *c c* on Exhibit 19 joints, but cracks?

825 A. Because they are not straight like a joint; they are crooked.

X Q. 51. Then you swear that, in your opinion, the line *b b* on Exhibit 19 is crooked, do you?

A. I swear that the crack in front of that office is crooked.

X Q. 52. Does this photograph, Exhibit 19*, represent what you call the cracks in front of that office?

A. No, sir; that line *b b* appears here perfectly straight, but in front of the office it is cracked, with a ragged edge—not straight.

Defendants' counsel hands witness Defendants' Exhibit 19*.

X Q. 53. Will you take this photograph and compare it with the pavement in front of Gunther's office so you can testify more clearly at the next examination?

A. Yes, sir.

Adjourned to 24th, at 10 a. m.

WEDNESDAY, *Dec. 24th*—10 a. m.

Recross continued:

X Q. 54. Have you compared this Exhibit 19* with the pavement in front of Gunther's office, as requested by me?

A. I have.

X Q. 55. Please hear the officer read to you cross-question 52 and answer the same again.

A. No; because the cracks here are straight and there they are crooked.

X Q. 56. Then, according to your opinion, this exhibit is not a photograph of the pavement as it actually is. Is that so?

A. That's my opinion, because there is cracks in it that I can't see with a magnifying glass, even. It also does not show where cracks had been filled up.

X Q. 57. Have you seen Mr. Schillinger since your last examination and conversed with him regarding your testimony?

A. No, sir; I have seen him, but had nothing to say about that affair.

Redirect examination:

Q. 58. To what cracks do you allude that seem to you to have been filled up?

A. There is a crack, or was one and is filled up, running from line *a a* (the witness points to Exhibit 19*), commencing near
826 the gate post, running towards the office, slanting off towards line *b b*, and another one running from line *a a*, up nearer the office, branching off towards the line *b b*.

Q. 59. On what day since your last examination here did you compare the photograph Exhibit 19* with the pavement in front of Gunther's office?

A. On Monday, 22d inst., about 12 o'clock, noon.

Q. 60. Was any one present there at the time or during the time you compared them; if so, who?

A. Yes, sir; I took two men with me when I went. One man's name was Coogan, the other one McGuire; and while we were examining it Mr. Gunther drove up in his carriage.

Q. 61. You have said that the pavement in front of Dunn's factory was taken up and another cement pavement laid in place of it. Describe the pavement laid in place of it, and state when it was so relaid.

(Objected to as immaterial and not recross-examination.)

A. It was relaid in the spring of 1871, and it was laid in sections running from the building to the street of about three feet wide, and some mixture of tar or pitch or something of that kind, I don't know what, between the sections.

THOMAS S. GREENE.

Subscribed and sworn to before me December 19, 1873.

R. E. STILWELL,
Examiner, &c.

Adjourned to 29th inst., 11 a. m.

FRIDAY, *January 29th*, 1874.

Present: Counsel for respective parties.

JOHN W. HEESCH, being called and duly sworn as a witness in behalf of the complainant, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. John W. Heesch; I am 36 years of age; I live on Jersey City Heights, on Laidlaw avenue, near Palisade avenue—second house from Palisade avenue; I am in the mustard business, in the employment of Bauer Bros., No. 215 Centre St., N. Y. city.

Q. 2. Do you know Julius Hopke?

A. I do.

827 Q. 3. Did you and Hopke obtain a patent relating to artificial stone pavement; and, if so, in what year?

A. Yes, sir; in 1871.

Q. 4. Describe what the invention was, and also who made the invention.

A. First Hopke said something about it and we talked it over. The first time he said we want to use metal instead of tar paper; and then the first thing we put down was a little piece of wood in a box, and then he explained to me what to put the pattern in. We didn't put any wood in that; we put a piece of brass in with a lip on it, half an inch turned over. The first who made the invention was Hopke.

Q. 5. Do you recollect what time that invention was made?

A. Yes, sir.

Q. 6. Please state.

A. It was in 1871, on the 24th of March.

Q. 7. Did you ever work in cement?

A. Yes, sir.

Q. 8. How many years have you worked in cement?

A. I commenced in 1869, 8th of August, and continued until July 7th, 1873. Sometimes I had something to do and sometimes not. I never did anything else.

Q. 9. For whom did you work at the cement business August 8th, 1869, and how long did you continue to work for them?

A. I first worked with Bandman & Holman, and then they changed the name to Bandman, Holman & Co., and then they changed the name again; Mr. Holman went out, and it was Bandman & Co., but I am not sure how they called it at that time. I worked for them in that business from the 8th of August, 1869, to 1870, in September or October, I am not sure which; about 14 or 15 months.

Q. 10. Do you know of any cement pavement that was laid at Mr. Holman's house, at Union Hill, New Jersey, during the time you worked for Bandman & Holman or their firms?

A. I do.

Q. 11. Did you work at such pavement in laying it down?

A. Yes.

Q. 12. Please state when it was laid—the year and the month—and who worked at it.

A. It was 1869, in October, from the 8th to the 15th; somewhere about that time. There was a man named Drehmann and myself and another old named Seifert—don't know his first name—and a boy named Bernard Bruggemann.

Q. 13. Do you know where Mr. Drehman is now; where he lives?

A. All I know is that he lives in Philadelphia. You might

828 find out by his brother-in-law, who lives in West 4th street;

I don't know his name or his number. He lived there a year and a half ago.

Q. 14. What was the business of his brother-in-law?

(Objected to as irrelevant and immaterial.)

A. I am not sure, but I think he was a tailor.

Q. 15. What did Drehman and yourself and the others who you mentioned do in laying that pavement? I mean what particular portions of the work did either do.

A. Drehman finished it and I put the rough stuff down and the others mixed it for me.

Q. 16. Was there any pavement of any kind on the ground where this cement pavement was laid?

(Objected to as indefinite and as not having a proper foundation.)

A. No, sir.

Q. 17. Describe this cement pavement and the manner in which you and the others working with you made the same.

A. It was four feet wide; then, first, we put on both sides a joist about three inches by four; then put a cross-piece down, measuring by the eye, according to the batch we had mixed so as to fill up to it. Sometimes we didn't have enough, and we finished as much as we could, and sometimes we had too much and had to move the joist further along. We take the cross-piece out and move it further down.

Q. 18. When you moved the cross-piece further along what then did you do?

A. Sometimes put it down again; sometimes didn't use it at all.

Q. 19. About how long was that pavement in front of Mr. Holman's house?

A. About seventy-five to a hundred feet; I guess about a hundred feet.

Q. 20. Do you know on what street or avenue it was?

A. Corner of Bergenwood avenue and Union Place. I guess it was Union Place or Lewis street—I guess it was Lewis street.

Q. 21. How was that pavement finished?

A. All put down in one piece.

(Objected to by defendants' counsel as not responsive and volunteered.)

Q. 22. Do you know whether that pavement was afterwards taken up and laid over in whole or in part?

A. I know so much about it: I was living at that time in Bandman & Holman's factory. They took it up again next spring; I
829 don't know what time it was. I heard something about it; I don't know how, whether they took it up altogether or a part of it, and then they put it down again, so much as I know, I think in one piece again, and cut it with a trowel. I don't know, but I heard so.

(Answer objected to by defendants' counsel as hearsay.)

Q. 23. Did you, in your last answer, use the word "living" where your answer says "living" at that time in Bandman & Holman's factory?

(Objected to as incompetent.)

A. Yes; I did.

Q. 24. Was the man you called Seifert regularly employed by Bandman & Holman in their factory at the time that pavement was laid?

A. No, sir; if we got jobs and had something to do he got work; if not, he did not.

Q. 25. Did he do anything else in their employment besides mixing the stuff; and, if so, what?

A. Sometimes he did joiner work and other odd jobs if there were any to do.

Q. 26. Do you know of a cement pavement laid in 48th street, New York, by Bandman & Holman or their firms while you were with them?

A. I do.

Q. 27. State what kind of pavement that was, how laid, and near what avenue, and when it was laid.

(Objected to as not rebutting.)

A. Cement pavement; laid all in one piece; in 48th street, near Sixth avenue, fourth or fifth house from Sixth avenue; I guess it was laid in the last part of October, 1869.

Q. 28. Do you know for whom the work was done or who owned the premises?

(Same objection.)

A. I do; for Mr. Fitzpatrick, so much as I heard. He owned the two houses.

Q. 29. Did Bandman & Holman, while you were with them or their firms, lay other cement pavements besides the two you have mentioned at Holman's house and in 48th street while you was in their employment; and, if they did, how were such other cement pavements laid? I refer to pavements laid in plaster cement.

A. Yes, sir; I guess in 51st street, between Fifth and Sixth avenues; I guess laid in the same way as the one in 48th street.

830 I do not know any more besides these. There were some others outside, but I don't know where they were.

Q. 30. Do you know where the Lion brewery is in this city?

A. Yes, sir.

Q. 31. Is there a cement pavement or sidewalk in front of that brewery or of any part of the premises?

(Same objection and as leading.)

A. I don't know anything about sidewalk, but there are some floors laid in that brewery—cellars or something like that; that is all I know about it.

Q. 32. How long were you and Hopke in getting up the invention that you and he patented?

(Objected to as immaterial.)

A. We commenced in 1871, the 2d of January, and were three or four months, about.

Q. 33. Did Julius Hopke do any work in laying down the pavement at Holman's house in Bergenwood avenue when it was laid in October, 1869?

A. No, sir.

Cross-examined:

X Q. 34. How many days did it take to lay that pavement in front of Holman's house?

A. I don't think it was much over three days; I can't say exactly.

X Q. 35. Did you put that movable joist against the edge of the cement when leaving the work at night?

A. Sometimes we did and sometimes not.

X Q. 36. When you left the joist against the cement over night what did you do next morning?

A. We took the joist away, and then on the edge cut it down sometimes and sometimes did not.

X Q. 37. What did you cut it down for and how did you cut it down?

A. So as to get it tight together; took a trowel and made some holes on the edge.

X Q. 38. But when you did not cut it down the next morning the cement, of course, did not bind, did it?

A. Yes, sir; it did bind.

X Q. 39. What did you cut it down for, then?

A. For ourselves, for our work; it is easier to get it smooth on the top.

831 X Q. 40. That was the only reason you cut it down for, was it?

A. That's all, and when we want to get it close together we have got to do it then.

X Q. 41. So without cutting the edge it would not come close together, would it?

A. Yes; it would.

X Q. 42. Why, then, do you say that you have got to cut it when you want to get it close together?

A. I guess I made a mistake there. I didn't understand. I didn't answer correctly where I said I have got to cut it.

X Q. 43. What did you cut the cement edge down for, then?

A. The first is to get it close and tight together, and the second is it is the easiest way to get it smooth on the top.

X Q. 44. Then, without cutting, you would not get it close and tight together, would you?

A. Yes; all close together without cutting.

X Q. 45. Why, then, do you say that you cut it to get it close together?

A. I don't mean cutting the edge down crossways; I mean cutting it in blocks.

X Q. 46. You mean by cutting it in blocks you get it closed and tight together then?

A. I mean if you get blocks and cut it through with a trowel and then divide it as soon as the cement is set, then it will be in blocks.

X Q. 47. In answer 37 you say that you cut the edge of the cement on the Holman pavement in the morning with a trowel and made some holes on the edge. What did you do that for?

A. First, to get them close and tight together, and then it is easier to work and get smooth on the top.

X Q. 48. Then if you had not cut the edge of the cement in the way you did the fresh cement would not have come close and tight against the old, would it?

A. Yes, sir; it would.

X Q. 49. How would it have come tight against the old?

A. Well, it binds together as long as the edge is clean.

X Q. 50. Are you sure of that?

A. I am.

X Q. 51. Were you ever treated against delirium tremens; and, if so, when?

(Objected to because irrelevant and insulting to the witness.)

A. No, sir.

X Q. 52. Where were you immediately before you entered the employ of Bandman & Holman, in August, 1869?

832 A. I was doing nothing for four or five weeks.

X Q. 53. Were you sick in the summer of 1869?

A. No, sir; not in 1869.

X Q. 54. Do you swear that in 1869 you did not consult a physician about your health?

A. Yes; I do.

X Q. 55. Do you know H. A. Gunther, one of the defendants in this cause?

A. Yes, sir.

X Q. 56. Did Mr. Gunther, about 1868, furnish you with means to establish a cigar store in Hoboken, New Jersey?

A. Yes, sir; it was the last part of 1868.

Further examination adjourned to Tuesday, January 6th, 1874, at 10 a. m.

TUESDAY, *January 6th*, 1874.

Present: Counsel for both parties.

Adjourned to the 12th inst., at 11 a. m.

MONDAY, *January 12th*, 1874.

Present: Counsel as before.

Cross-examination of JOHN W. HEESCH resumed:

X Q. 57. How long did you keep that store?

A. I only commenced the store in 1869, in January, and kept it, I guess, until the 14th April, 1869.

X 58. Did you, during or before the time you kept that store, have some business transactions with Mr. Peter Schaas, of Union Hill, New Jersey; and, if so, what business was it?

A. I did; I sold cigars to him.

X Q. 59. Did you ever collect from Mr. Schass money for Mr. Gunther?

A. No, sir.

X Q. 60. Did you ever write a letter to Mr. Gunther in the name of Mr. Schaas?

A. No, sir.

833 X Q. 61. Do you remember an interview in that cigar store in Hoboken between yourself, Mr. Gunther, and Mr. August Schul, manufacturer of snuff?

A. I do not.

X Q. 62. You say, in answer 22, that you heard something about the relaying of the pavement in front of Holman's house, in the spring of 1870, but that you did not know about it. Can you account for this want of knowledge, though at the time you lived in Bandman & Holman's factory?

(Objected to as immaterial and irrelevant, and as calling for an opinion.)

A. I didn't see it.

X Q. 63. Why did you not see it?

A. I was working in the factory.

X Q. 64. Did you live on the Guttenberg road at that time?

A. No; I lived in the factory.

X Q. 65. Where is that factory?

A. It is right below Kemmler's brewery, on the North River.

X Q. 66. Did you ever live on the Guttenberg road; and, if so, when?

A. I don't know what you call the Guttenberg road.

X Q. 67. How long did you live in that factory?

A. From the 1st November, 1869, to the end of July or the fore part of August, 1870.

X Q. 68. Did you, in answering the last question, refer to a written paper; and, if yea, will you produce that paper?

A. I did, and I produce it.

X Q. 69. When did you write this paper, and why did you write it?

A. About fourteen days from now, so that I wouldn't make a mistake where I lived all the time from 1868 to the 1st of May.

X Q. 70. In this paper I find that when you left the factory, in 1870,

you moved upon the hill, to Oil's house in Guttenberg. How long did you live there?

A. I guess it was about February, 1871.

X Q. 71 Were you sick while living in that house; and, if yea, what ailed you?

A. I had what they call the erysipelas.

X Q. 72. Who were your physicians?

A. Dr. Muller, of Hoboken.

X Q. 73. Did you not have two doctors?

A. Yer, sir. I have forgotten the other's name; he lived at that time in Guttenberg.

X Q. 74. Did not several persons watch at your bedside at night during this sickness?

A. Yes, sir.

834 X Q. 75. Was Mr. Albrecht Springer one of these persons?

A. Yes, sir.

X Q. 76. And Mr. Ernest Jansen also?

A. No, sir.

X Q. 77. And Mr. Springer's brother, too?

A. Yes, sir; he was.

X Q. 78. Why did these several persons watch with you if you only had the erysipelas?

A. I had the erysipelas in my head, and the first doctor—I don't know his name—gave me the wrong medicine, and drove everything to my head.

X Q. 79. Were you, then, often wild and out of your senses at night and was that the reason these several persons watched with you at night?

A. I was for three or four days all the way through, both night and daytime.

X Q. 80. Did the first doctor, whose name you have forgotten, call your disease delirium tremens?

A. No, sir.

X Q. 81. What did he call it?

A. He called it "head erysipelas."

X Q. 82. Did he call it so before he drove it to your head?

A. Yes, sir.

X Q. 83. What did Doctor Muller call that disease?

A. He did not say anything to me about it. I guess he called it the same.

X Q. 84. Were you never informed that that disease was called "delirium tremens?"

A. No, sir.

X Q. 85. Did you also in 1868, while you lived in a hotel in Hoboken, called the "Hamburg and Bremen House," suffer of a similar disease?

A. Yes, sir; it was not so strong at that time.

X Q. 86. Who attended you then as a physician?

A. A Doctor Muller, of Hoboken.

X Q. 87. When did you and Hopke obtain a patent for artificial stone pavement. Give the date of the patent, as near as you remember?

A. We made it on the 24th of March, 1871, and gave it in the 5th of April, 1871. The patent is dated February 27th, 1872, I guess.

X Q. 88. What patent is that which you obtained in 1871, together with Hopke, as stated in your answer 3?

A. Instead of Schillinger's tar paper it was a piece of metal strap a half inch on the top, turned over.

X Q. 89. And what patent is that which you say, in answer to X Q. 87, was granted you and Hopke in 1872?

A. We never gave a patent in in 1872.

835 X Q. 90. Question repeated.

A. That is the same that we made on the 24th March, 1871—a metal strip turned over.

X Q. 91. Then you obtained two patents for the same invention, did you? Before replying, please hear question and answer 87 read to you.

A. No, sir.

X Q. 92. You are sure that you commenced that invention with Hopke on the 24th of March, 1871, are you?

A. We tried before, from the 2d January of the same year.

X Q. 93. Did Hopke make that invention?

A. He did, the first.

X Q. 94. What do you mean by "the first?"

A. He was talking about metal strips, and then we talked it over and came to that point, to turn it half an inch over.

X Q. 95. Where did you live when that invention was first mentioned to you?

A. At Guttenberg.

X Q. 96. Did you hear of that invention before or after that disease which befell you at Guttenberg?

A. Before.

X Q. 97. During what time were you sick at that place?

A. It commenced on the 9th or 10th of January and lasted about fourteen days.

X Q. 98. How do you know that that invention was made on the 24th of March and not on any other day?

A. I know that for myself, and I have two or three witnesses, too.

X Q. 99. What peculiar circumstance makes you think it was on the 24th March?

A. I know and I am sure of that. I can find witnesses, too.

X Q. 100. What witnesses? Give their names.

A. Conrad Tewes and Henry Brummerhop. Brummerhop lives, I think, corner William and Frankfort streets, New York.

X Q. 101. Do you remember having been in this office on the 4th December, 1871?

A. I do not.

X Q. 102. Do you remember that on that day you signed an affidavit relating to this matter?

A. It was about that time; I don't remember what day it was.

X Q. 103. Where did you sign that affidavit and in whose presence?

A. In Van Santvoord & Hauff's office, in Mr. Schillinger's presence.

X Q. 104. Why did you prepare that affidavit or have it prepared?

A. I don't know; he wanted me to do it.

X Q. 105. What did that affidavit have reference to?

836 A. It was how we put pavement down in Holman's house on Union Hill.

X Q. 106. Did Mr. Schillinger tell you why he wanted that affidavit?

A. He did not.

X Q. 107. Were you ever locked up in jail through Mr. Gunther's efforts?

A. I was in the station-house once; yes.

X Q. 108. When was that and why were you locked up, and where?

A. It was in 1869; I don't know the month; it was in the summer. He said I owed him something like twenty-eight dollars. It was in Hoboken.

X Q. 109. Any other reason besides the owing of money?

A. That's all I know.

X Q. 110. Have you read the warrant on which you were imprisoned at that time?

A. Yes, sir.

X Q. 111. Have you a copy of the warrant now in your possession?

A. No.

X Q. 112. What was the charge mentioned in that warrant?

(Objected to as irrelevant and because the warrant itself is the best evidence.)

A. I was about to cross the ferry on my way to New York when a man showed me the warrant and took me to the station-house.

X Q. 113. What was written on that warrant?

A. He claimed—I guess it was—twenty-eight dollars and eighty cents.

X Q. 114. Were you ever imprisoned on another warrant under the charge of Mr. Gunther?

A. No, sir.

(Recess.)

X Q. 115. What was on the sidewalk in front of Holman's house in September, 1869?

A. Before we put the pavement down it was only regular ground—a kind of little gutter without curbstone.

X Q. 116. Did you ever see that pavement which was laid in front of Holman's house in the spring of 1870?

A. Yes, sir.

X Q. 117. When first did you see that?

A. I don't know the time; it was in the spring—after March, anyway.

X Q. 118. Do you think you saw it before May, 1870?

A. It might be a little before May; might be a little after; it was about that time.

837 X Q. 119. Did you frequently go to Mr. Holman's house while you were in the employ of his firm?

A. Yes, sometimes; not very often.

X Q. 120. What took you there when you went?

A. It might be sometimes I got a little to let him know; that's all I know.

X Q. 121. Do you know in what month of the spring 1870 that pavement was relaid?

A. I do not know exactly.

X Q. 122. Do you think it was as late as the end of June?

A. I don't know; might be it was in May or June. I don't know what time it was.

X Q. 123. Did you aid Bandman & Holman in laying that pavement in 48th street, about which you have testified here?

A. Yes, sir.

X Q. 124. How was it finished?

A. The same way as the one put down at Holman's house.

X Q. 125. Do you mean the same as the one put down at Holman's house in the spring of 1870?

A. On the first time 1869?

X Q. 126. Did that pavement in 48th street when finished look as though made in one piece?

A. It did.

X Q. 127. How long have you been acquainted with J. J. Schillinger, complainant?

A. It must be about September or October, 1870, that I became acquainted with him.

X Q. 128. How did you become acquainted with him?

A. I was looking for a job.

X Q. 129. Did he give it to you?

A. He did.

X Q. 130. Why did you not stay with Bandman & Holman?

A. He took me to work in the factory, and then he sent me over to New York to work in Central Park and promised me to pay my fare; he paid my fare the first time, as long as I was working in the Central Park. Then he sent me down to the New Haven railroad depot. I was working there some days; I don't know how many; then we had pay day, and he wouldn't pay me the fare any more; that's the way I went from him.

X Q. 131. Whom do you mean by "he" and "him" in your last answer?

A. Whatever you call it—Bandman & Holman, Bandman & Co.—I don't know what you call them at that time.

838 X Q. 132. Do you mean to say that you were not discharged by them?

A. No; they did not discharge me.

X Q. 133. How long did you work for Mr. Schillinger?

A. From that time I went from that company—Bandman & Holman or whatever you call them—till about December 27th or 28th, 1870.

X Q. 134. Why did you leave him?

A. He had no work any more.

X Q. 135. Did you work for him again since that time?

A. I did.

X Q. 136. When?

A. In 1872—I guess it was November—about six or seven weeks, that's all.

X Q. 137. Did you know a man by the name of Schmidt, who worked for Bandman & Holman the same time you did, and afterwards also joined Mr. Schillinger?

A. Yes, sir.

X Q. 138. When and where did you first see a pavement made of cement and laid in sections or blocks?

A. In 1870, in Central Park.

X Q. 139. Who laid that and when was it laid?

A. Dreyer and myself laid it. I guess it was in October or November, 1870.

X Q. 140. How did you lay that pavement?

A. In blocks.

X Q. 141. Please describe how you proceeded in laying that pavement and how you went to work to form the blocks.

A. We made a frame of wood and put it down; then filled it up and moved the frame back.

X Q. 142. How did you keep the blocks separated?

A. Put tar paper between it.

X Q. 143. And you solemnly swear that that was the first time in your life you ever saw cement laid in blocks?

A. I seen some before that.

X Q. 144. Please state when and where you saw it before.

A. These blocks that we made in the factory—tiles, that's what I mean by that—made in the factory, and then put down like regular marble tiles—I don't know what time they put it down; it was in 1869.

X Q. 145. In answer 143 you say you saw some cement laid in blocks before you saw that laid in the Central Park. Please state when and where you first saw cement laid in blocks or sections.

A. I don't remember of seeing it before.

X Q. 146. Will you solemnly swear that that pavement in the Central Park is the first you ever saw in your life laid in blocks of cement?

839 A. I don't remember seeing anything before.

X Q. 147. Will you also solemnly swear that Doctor Muller, of Hoboken, never told you that you was suffering from delirium tremens, and treated you accordingly?

A. So much I know not.

Adjourned to Thursday, January 15, 1874, 10.30 a. m.

THURSDAY, *January* 15th—10.30 a. m.

Present: As before.

Cross-examination of JOHN W. HEESCH continued:

X Q. 148. Does that Doctor Muller live in Bloomfield street, Hoboken, and is his name E. Muller?

A. He lives in Bloomfield street. I don't know his first name at all.

X Q. 149. Do you know the number in Bloomfield street?

A. I do not.

X Q. 150. Do you know between what cross-streets it is?

A. I guess between 3d and 4th, I think.

X Q. 151. Are you married?

A. I am.

X Q. 152. Did you send your wife to Doctor Muller day before yesterday to request him not to testify in this cause that you are or were a sufferer of delirium tremens?

(Objected to as immaterial.)

A. I did not.

X Q. 153. Are you aware that your wife did call on Dr. Muller day before yesterday?

(Same objection.)

A. I don't know anything about it.

X Q. 154. Do you positively swear that you do not know of your wife's visit to Dr. Muller this week?

A. I do.

X Q. 155. Did you hear me tell Mr. Van Santvoord on the day of your last examination that I would call Dr. Muller as a witness in this cause or words to that effect?

A. I did.

X Q. 156. Is this the warrant on which you were arrested in Hoboken in the year 1869?

(Objected to as immaterial and as not proper subject for cross-examination.)

840 A. Yes, sir, I think it is; all I know by is the $28\frac{80}{100}$.

Warrant offered in evidence by counsel for defendants and marked Defendants' Exhibit 20, R. E. S., Ex'r.

The offer in evidence of the warrant objected to for the like reasons.

X Q. 157. Have you also seen this bill of complaint sworn to by Mr. Gunther and the order of Justice White, of Hoboken, to issue the above warrant, Exhibit 20?

(Same objection.)

A. I never seen this paper.

Paper shown witness is offered in evidence by defendants' counsel and marked Defendants' Exhibit 21, R. E. S., Ex'r.

The offer of that paper in evidence objected to for the same reasons.

X Q. 158. Have you ever placed plastic cement against an even or smooth surface of hard cement; and, if so, when and where first?

A. Yes; I done it last summer in Grand street, Jersey City.

X Q. 159. Did the fresh cement stick or adhere to the hard cement?

A. Yes, sir.

X Q. 160. Did the fresh cement also adhere after it had become hard?

A. Yes, sir.

X Q. 161. Whereabout in Grand street is that cement work? Describe the place so that I can find it.

A. All I know is that it is near the hill. There is no number.

X Q. 162. Whose house is it?

A. I don't know; I was working for Kirkendale Brothers.

X Q. 163. What work is it—pavement, or what?

A. Pavement.

X Q. 164. How do you know the fresh cement after it had become hard would adhere to the cement that had been hard before?

A. I done it; I tried it.

X Q. 165. Where have you done it and tried it?

A. In Jersey City; I told you in Grand street.

X Q. 166. Question 164 repeated.

(Objected to as already answered.)

A. I tried it.

X Q. 167. By what did you ascertain the result of your trial?

A. I took something like a hammer or club and knocked on it and felt it was solid.

X Q. 168. Where did you "knock" it and how soon did you "knock" it after the fresh cement had been laid?

841 A. I knock it any place; about two months afterwards it was done.

X Q. 169. How soon after one lot or batch of cement had been laid on that pavement did you put the fresh cement down against it?

A. I didn't put down the first at all. That was laid the day before.

X Q. 170. Did you put your fresh cement upon the old—I mean on top of it—on that pavement in Grand street?

A. No, I did not.

X Q. 171. Describe how much of the pavement was old cement, and how much did you put down, and in what part of the pavement the fresh cement joins the old.

A. I cut off from the old pavement, on the top, about an inch and a half or about an inch and a quarter, wet it, put a little water on, and then put the same inch and a quarter on again. I don't know how many feet it was; it was some blocks; it was not over the whole surface.

X Q. 172. Was the old pavement, then, in blocks?

A. Yes, sir.

X Q. 173. Why did you take that inch and a half or inch and a quarter off the old?

A. The pavement was put down late in the fall, and the first night there was freezing on the top, and that spoilt the top, so it shears off the next spring—didn't look very well.

X Q. 174. Did you finish the top which you put on in blocks also like the lower part, or did you make that new top all in one piece?

A. In blocks; the same way it was before.

X Q. 175. How did you produce the joints or divisions in that top covering which you put on?

A. Them blocks was divided with tar paper.

X Q. 176. Why did you put a little water on top of the old cement after you had cut it down?

A. To get it clean, and so I get the dust off the old cement.

X Q. 177. Was that the first time that you tried placing fresh cement against hard cement?

A. No, sir.

X Q. 178. Which was the first, and where?

A. In Union Hill; at Holman's house.

X Q. 179. When first did you go to Holman's house?

A. About September or October, 1869.

X Q. 180. What first took you there?

A. I guess I brought a letter to his house.

X Q. 181. Who gave you that letter?

A. I guess our driver brought it to our factory from New York.

X Q. 182. What's the name of that driver?

(Objected to as immaterial.)

842 A. I don't know any more. We had different drivers at that time.

X Q. 183. Did you, then, already live in the factory?

A. No, I did not.

X Q. 184. Are you sure it was in September when you first went to Holman's house?

(Objected to because the witness has said "about September or October, 1869.")

(Counsel for defendants objects to the quotation of previous answers of this witness by complainant's counsel and to all improper interference to the cross-examination.)

A. I think it was.

X Q. 185. When last did you go to Mr. Holman's house in Bergenwood avenue?

A. I guess it was—the last—the next year in the spring. I don't know any more what date it was.

X Q. 186. Do you know about the month?

A. I can't say; it might be April or May or something like that.

X Q. 187. You don't think it was as late as the latter part of June, do you?

A. I can't say anything nearer.

X Q. 188. What do you mean by "nearer" in your last answer?

A. The last time I was in his house.

X Q. 189. You say that you used a joist in laying that Holman pavement, which joist you moved along from time to time, or words to that effect. What was the use of that joist, why did you employ it, and who told you to use it?

A. That's only between to keep them two joists outside—them long ones—straight; to keep them the same width at each end.

X Q. 190. Did you use that movable joist on the second day of laying that pavement?

A. Yes, sir.

X Q. 191. What did you do that for?

A. Because we got to put them down the same way again.

X Q. 192. Why did you not put that movable joist between the ends of the long joists at once and thus save you the labor of moving it along?

A. Because the long joists are about thirteen feet long, and if we put the cross-piece in the middle might be the outside joists may be out of a straight line.

X Q. 193. Then you must have used about six or more long joists, all in a row, on each side. Is that so?

A. I don't know how many we used; might be we took them up again the next day. I forgot about that.

843 X Q. 194. How do you mean—"took them up again next day"—take them away from the cement, or how?

A. Move them further down; used them again, I mean.

X Q. 195. If you removed the long joists what did you put in place of them to protect the pavement at the sides?

A. Ground, stone, everything like that.

X Q. 196. Now tell me by what you know that that Holman pavement was, as you say, all in one piece.

A. Because I was working on it, put it down, put it all down in one piece.

X Q. 197. Is that the only source of your knowledge as to that pavement being in one piece?

A. That's all I know about it.

(Recess.)

X Q. 198. You say that you and Hopke obtained a patent for a cement sidewalk. Did you ever lay sidewalks or cement flooring under that patent?

A. We did.

X Q. 199. Whom do you mean by "we" in your last answer?

A. Hopke and me.

X Q. 200. Were you in partnership with Hopke while doing so?

A. Yes, sir.

X Q. 201. How long were you in partnership with Hopke—from what time to what time?

A. From the 1st January until about May in the same year we gave our patent in.

X Q. 202. Then it was in 1871, was it?

A. Yes; it was.

X Q. 203. Where did you lay cement pavements while in company with Hopke?

A. Meadow street, Hoboken, between 9th and 10th streets, at Mr. John Duhrkop's. He keeps a wholesale liquor business at 228 Washington street, New York.

X Q. 204. Any other?

A. I guess it was 445 Henry street, Brooklyn. Mr. Grant is the name.

X Q. 205. Any other?

A. No pavement or flooring.

X Q. 206. So you only laid those two pavements named by you in company with Hopke?

A. That's all in that year.

X Q. 207. Did you lay cement pavements or floors afterwards, together with Mr. Hopke or alone, under your and Mr. Hopke's patent?

844 A. I did; for me alone.

X Q. 208. When?

A. It was in 1871, in the last part of the summer. I don't know the month. I had another little piece that I don't remember now in the same year.

X Q. 209. Did you lay any in 1872 or 1873 under your and Hopke's patent?

A. Not for me alone.

X Q. 210. Who for?

A. Saint Mary's Hospital, Hoboken.

X Q. 211. When was that laid?

A. I think it was April, 1872.

X Q. 212. Did Mr. Schillinger ever threaten or warn you that by doing such work you infringed his patent?

A. Not to me.

X Q. 213. Do you remember what you stated in the affidavit which you made in December, 1871, as stated in your answer 103?

A. About Holman's house; that's all I know.

X Q. 214. What did you say about Holman's house?

A. Just the same what I say in here; the way we put it down—the pavement.

X Q. 215. Did you keep a copy of that affidavit?

A. I did not.

X Q. 216. Do you know where the original is?

A. I do not.

X Q. 217. Did Mr. Schillinger at the time you made that affidavit know that you had made application for a patent for a pavement to be laid in blocks?

A. I don't know.

X Q. 218. Did you ever tell him about your application for that patent?

A. I don't know; I think not.

X Q. 219. Did he ever speak to you about it?

A. I don't know any more; I can't say.

X Q. 220. After the patent had been obtained by you and Hopke did you ever speak about it to Mr. Schillinger?

A. I did.

X Q. 221. Do you know when first you spoke to him about it?

A. The same day that I made that affidavit out.

X Q. 222. Do you mean the affidavit in regard to which I have questioned you?

A. It was the affidavit about the pavement at Holman's house; '71 it was, I guess.

845 X Q. 223. Give the conversation you then had with Mr. Schillinger in regard to your and Hopke's patent.

A. I didn't speak to him about the patent; I don't remember anything about that.

X Q. 224. In answer 220 you say that you did speak to Mr. Schillinger about your patent after it had been obtained. When first did you speak so to Mr. Schillinger after you obtained the patent, and what was said by you and him on that occasion?

A. I spoke to him; that I know; but I don't know what I spoke to him. I spoke to him, but I don't know that I spoke to him about the patent.

X Q. 225. Did you ever speak to Mr. Schillinger about your and Hopke's patent; and, if so, when first?

A. I did; it was in 1871, about November.

X Q. 226. Please state what took place between you and Mr. Schillinger at that time; what he said and what you said.

(Objected to as immaterial.)

A. I only told him we sent the patent in for metal strips instead of tar paper, and he answered me that that patent, if we get it, is nothing worth to us.

X Q. 227. Did he tell you why it was nothing worth to you?

A. I don't remember that.

X Q. 228. After that first conversrtion did you speak again to Mr. Schillinger about your and Hopke's patent; and, if so, when first?

A. I spoke to him again, but I don't remember about that patent.

X Q. 229. Did you never offer it to Mr. Schillinger to buy?

A. I did not.

X Q. 230. Did he never offer to purchase it from you?

A. He did not.

X Q. 231. Did you ever tell Mr. Schillinger that you had laid some pavements with metal strips between the blocks?

A. I did.

X Q. 232. What did he say when you told him that?

A. He didn't answer much on it; what the answer was I don't know any more.

Redirect examination:

Re-D. Q. 233. Did you and Hopke ever get more than one patent together?

A. We did not.

Re-D. Q. 234. You say that when you was sick in 1871 Doctor Muller attended you, and also another doctor. Which doctor attended you first?

(Objected to as already answered.)

846 A. I know his name now—the other doctor; his name was Wandebacher.

Re-D. Q. 235. Did Doctor Muller at that time say anything to you about the treatment or medicines which that other doctor gave you; if so, what?

A. He did; he said he gave me the wrong medicines.

(Answer objected to as contradictory to former evidence given by this witness.)

Re-D. Q. 236. Do you know what medicine he gave which Doctor Muller said was wrong?

A. I do, some of them.

Re-D. Q. 237. What?

A. My head was all swelled up, all red in the face, and he—the first doctor—told me to put some cold water on my head and face. Then he gave my wife an order to go to the doctor shop and get the strongest brandy she could get and some small powder, and then gave her orders to give me every half hour or so (I don't know how often; I guess every quarter of an hour) a small glassful of the brandy and a powder in it—a glass about the size of a small "sherry glass."

Re-D. Q. 238. In answer X 103 you say you signed an affidavit at Messrs. Van Santvoord & Hauff's office in Mr. Schillinger's presence. Please read or hear read the paper I now hand you and state whether or not that is the affidavit you refer to.

(Objected to as leading.)

A. It is.

Re-D. Q. 239. Look at the signature at the end of that affidavit and state if that is your signature—"Joh. W. Heesch."

A. It is.

(Counsel for complainant offers in evidence the affidavit shown to the witness, and it is marked "Heesch Exhibit, R. E. S., Ex'r.")

Re-D. Q. 240. You say in answer 115, "Before we put the pavement down" in front of Holman's house "it was only regular ground." State, if you know, who prepared the ground for laying that cement sidewalk.

(Objected to as without foundation.)

A. We done it ourselves, all that were working on it.

Re-D. Q. 241. When?

(Same objection.)

847 A. About the same time the pavement was laid.

Re-D. Q. 242. In answer 139 you say that the cement pavement laid in 1870, in Central Park, in sections or blocks, was laid by Dreyer and yourself. For whom did you lay that pavement?

A. Mr. Schillinger.

Re-D. Q. 243. Was there a trial on the warrant, Defendants' Exhibit 20?

A. Yes, sir.

Re-D. Q. 244. State briefly what occurred.

A. I don't know how it was or how it came. I had a lawyer there, and I guess he puts it off for a week for the jury trial. Then Mr. Gunther didn't come to that trial at all. The judge told my lawyer then that it was all over; that Gunther got lost.

Re-D. Q. 245. Did you consider then that you owed Mr. Gunther the debt, $28.80, mentioned in that warrant?

(Objected to as leading and as calling for an opinion.)

A. I did not.

Re-D. Q. 246. Do you now think so?

(Same objection.)

A. I don't owe him anything at all.

Re-D. Q. 247. Do you have any malice against Mr. Gunther?

(Same objection, and as incompetent.)

A. No.

Recross-examined:

Re-X Q. 248. How did you find out the name of that first doctor?

A. I don't know; I just thought of it.

Re-X Q. 249. How is it you didn't think of it when I asked you?

A. I don't know either. About four or five minutes after you asked me I knew it.

Re-X Q. 250. I did question you again about that doctor more than five minutes after I asked you his name; why did you not tell me his name then?

A. Might be it took a little more. You didn't ask me any more for it.

Re-X Q. 251. When did you first hear of the second pavement laid in front of Holman's house, which you have testified about and which you say was cut into blocks?

(Objected to because not proper subject of recross-examination.)

A. It might be May or June of that year, 1870.

Re-X Q. 252. And you also saw it in 1870, did you not, while going to Mr. Holman's house?

848 A. I did not, because the pavement laid on the other side and the front was on this side. (The witness points on the table.)

Re-X Q. 253 You solemnly swear, then, that you never saw that

pavement which was laid in front of Holman's house, as you say, in the spring of 1870?

(Objected to because already answered and because not recross-examination.)

A. I don't remember.

Re-X Q. 254. Please hear the officer read questions and answers X 116 to 122, inclusive, and then answer question 252 again.

(Objected to because not proper subject of recross-examination.)

A. I don't remember.

Re-X Q. 255. Being, as you say in answer 251, informed that Holman's pavement had been relaid in blocks, how could you make affidavit on the 4th of December, 1871, that all pavements laid by Bandman & Holman or their firms were laid, to the best of your information and belief, in one continuous piece?

A. As soon as they had it down they cut it in blocks with a trowel; so they told me.

Re-X Q. 256. Was the pavement, then, in one continuous piece if it was cut in blocks?

A. It was one piece before it was cut; so much they told me.

Re-X Q. 257. Could, in your opinion and according to your knowledge of cement-work, a cement pavement which it takes three days to lay be laid in one continuous piece and then be cut in blocks on the third or fourth day?

A. No, sir.

Re-X Q. 258. Why did it take you three days to lay that first pavement at Holman's house?

A. I don't know why; there was so much work on it.

Re-X Q. 259. Could you have finished it all in one day.

A. No, sir.

Adjourned to Thursday, 22d inst., 10.30 a. m.

THURSDAY, *January 22d*, 1874.

Adjourned to Wednesday, 28th inst., 10.30 a. m.

849 WEDNESDAY, *January 28th*, 1874—10.30 a. m.

Present: Counsel for respective parties.

Recross-examination continued:

Re-X Q. 260. What kind of pavement did you lay in Central Park for Bandman and Holman or their firms?

A. It was the bottom of the big fountain there; it was cement pavement.

Re-X Q. 261. How was it laid?

A. In one piece.

Re-X Q. 262. How long did it take you to lay it?

A. I don't know; about eight to twelve days.

Re-X Q. 263. Did you use any joists in laying it?

A. Yes, sir.

Re-X Q. 264. Did you work up to a joist and them move the joist and then work up to it again?

A. I don't know; I was doing something else.

Re-X Q. 265. What were you doing?

A. Wall plastering inside on the fountain.

Re-X Q. 266. Were you doing that work while others laid the pavement in that fountain?

A. Yes.

Re-X Q. 267. Did you see them use joists?

A. Yes, sir.

Re-X Q. 268. Did you see them work up to the joists and then move the joists and then work up to them again?

A. I don't recollect any more.

Re-X Q. 269. Do you recollect whether the joists were left against the edge of the cement over night?

A. No; I do not.

Re-X Q. 270. Did you do any other cement-work in Central Park for Bandman and Holman or their firms?

A. No, sir.

Re-X Q. 271. When was that work done on the fountain?

A. About August or September, 1870.

Re-X Q. 272. In answer 213 you say that the affidavit, "Heesch Exhibit," was about Holman's house. Please point out on that exhibit that part thereof which refers to Holman's house and read the words that you find in said exhibit referring to Holman's house.

(The witness requests the officer to read to him the affidavit referred to, which, being done, he answers as follows:)

850 A. I don't call them joists, them frames. I don't know what to answer on that.

Re-X Q. 273. You were requested in the last question to read that affidavit yourself. Instead of that you requested the officer to read it to you. Why did you not read it yourself?

A. I can't read English very correct.

Re-X Q. 274. In answer 272 you say, "I don't call them joists, them frames." Please explain more fully what you mean by that.

A. I understood in that affidavit that you mean about Holman's house—about them frames.

(Answer objected to by defendants' counsel as not responsive.)

Re-X Q. 275. Why do you not call joists, where they are used as they were on Holman's pavement, frames?

A. We did not need any frames if we put the pavement down in one piece.

Re-X Q. 276. What do you mean by frames, then?

A. Putting pavement down in blocks.

Re-X Q. 277. Describe a frame of the kind meant by you in "Exhibit Heesch?"

A. A piece of wood or joists—anything will do—fence strips; it don't make any difference whether they are smooth or rough; it's all the same.

Re-X Q. 278. How many pieces of wood or joists do you use on a frame?

A. Just as much as suits me.

Re-X Q. 279. Do you use three often to make one frame?

A. I make three; sometimes a dozen; sometimes more.

Re-X Q. 280. How can you use a dozen pieces of wood in one frame?

A. It might be I want to make seven or eight blocks together or at once.

Re-X Q. 281. Can you make a pencil sketch of a frame so constructed as to make seven or eight blocks together or at once? If so, please do so.

A. I have done so.

(Sketch made by the witness offered in evidence and marked Defendants' Exhibit 22, R. E. S., Ex'r.)

Re-X Q. 282. Please sketch on that same paper a frame used for making a single block, and mark the first sketch made by you A and the second B.

A. I have done so.

Re-X Q. 283. Why would not joists, as used on the Holman pavement, answer the same purpose as the frame B, Exhibit 22?

A. We only use them on both sides. If I make a block I got a frame all the way around on each side.

851 Re-X Q. 284. How do you bring the blocks close together if you use such frames as are used on Exhibit 22?

A. By filling up the spaces *a a*.

Re-X Q. 285. Then there is always one side of the frame open, is there not, and you don't have a frame all the way around the block on each side?

A. There is always one side of the frame open. I do not have a frame all the way around the block unless I want to make one block by itself.

Re-X Q. 286. Did you not have a cross-joist in laying that Holman pavement besides the two long joists at the sides?

A. Yes, sir.

Re-X Q. 287. If you do not remember how you used the joists in laying the fountain pavement in Central Park is it not possible they may have used frames in laying that pavement?

A. No; I know so much; they only used joists.

Re-X Q. 288. If you used the frame A, Exhibit 22, by filling in the open spaces *a a*, you only use two sides of each frame for each block; is that so?

A. That's so. The short pieces are connected together by the long piece.

Re-X Q. 289. What is the name of the lawyer mentioned in your answer 244?

A. Gustin. He lived in West Hoboken at that time—kept an office in Hoboken. He is dead.

JOH. W. HEESCH.

Subscribed and sworn to before me January 28, 1873.

R. E. STILWELL,
Examiner, &c.

WEDNESDAY, *January 28th*, 1874.

Present: Counsel as before.

BENJAMIN BALDWIN, a witness produced on the part of the complainant, John J. Schillinger, being by me duly sworn, deposes and says, in answer to questions proposed by J. VAN SANTVOORD, counsel for complainant, as follows:

Q. 1. What is your name, age, residence, and occupation?

A. Benjamin Baldwin; I am 69 years old; my residence is at No. 355 Bridge street, Brooklyn, N. Y.; I am a real estate agent, having my office at 409 Fulton street, Brooklyn, N. Y., between Adams and Pearl streets.

Q. 2. How long have you lived in Brooklyn?

852 A. I have lived in Brooklyn since 1821—in the spring of 1821—March.

Q. 3. Do you recollect an old mansion house which stood on the block bounded by Willoughby street, Fulton avenue, Jay street, and Lawrence street, in Brooklyn, owned by a gentleman named Willoughby?

A. Yes, sir.

Q. 4. Is that mansion still standing there? If not, what became of it?

A. It was burnt up.

Q. 5. When was it burnt?

A. It was burnt up on the 5th of July, I should think, 20 or 25 years ago. I don't remember the exact year. I could find the year.

Q. 6. Do you know Mr. Willoughby personally; and, if so, since when have you known him? And give his full name.

A. I suppose I have known Mr. Willoughby personally for 35 to 40 years. His full name is Samuel A. Willoughby.

Q. 7. Were you ever upon the premises and yard belonging to that Willoughby mansion previous to the time it was burned down?

(Objected to as leading.)

A. Yes, sir.

Q. 8. State whether you were there more than once.

(Same objection.)

A. Yes, sir.

Q. 9. Were there any walks or paths in the grounds or premises belonging to the Willoughby mansion? If so, describe the same as near as you recollect.

(Same objection.)

A. There were different walks. There were several walks through his garden; he had a very fine garden; a good many of them were made of this white gravel—dirt walks with gravel sprinkled over

it; but the main walk from the house to the stable was laid in flagging.

Q. 10. What kind of flagging?

A. Common flagging stones.

Q. 11. Do you recollect there being any garden or other walk on the premises belonging to the Willoughby mansion which was made of cement? I refer to the whole time you knew said premises.

(Same objection.)

A. No, sir; I never knew any to be laid there; not to my knowledge.

Q. 12. How long previous to the time the Willoughby mansion was burned down were you acquainted with the premises and the garden and the walks belong- to that mansion?

853 (Objected to as not having proper foundation, the witness not having testified that he was acquainted with the walks belonging to that mansion.)

A. Well, I think it was probably ten or twelve years. I could not say exactly, but I think it was as long as that.

Q. 13. Who lived in that mansion at the time it was burned down?

A. Edwards Pierrepont, and I think there was a clergyman living in a part of the house. It was a double house. I don't know the clergyman's name, but have heard him spoken of frequently. Edwards Pierrepont married one of Mr. Willoughby's daughters.

Q. 14. State what opportunities, if any, you had to enable you to know the different walks and pavements in the grounds belonging to the Willoughby mansion previous to the time it was burned down.

(Same objection.)

A. No other means of knowing more than going in and out of there frequently. What called me in there more than anything was that I used formerly to drive a cart with wood. I used to drive in there to dump the wood, and I used to look around there and look at the flowers and walks, but never saw any cement walk there, to my knowledge. One thing that called my attention to it was that old David Anderson used to keep a stone-yard at the foot of Dock street, and I used to ride a great many stone for him, and most always used to take notice of such things, looking around.

Q. 15. You have said that the main walk from the house to the stable was laid with flagging. What kind of flagging was it——

(Objected to as a repetition of question No. 10.)

describe it, particularly as you can, with respect to its appearance.

A. To the best of my knowledge and ability—I would not like to swear positively on that point—to the best of my ability a part of it was laid with what we used to call silver-grey flagging and some with the brown stone.

Q. 16. Was there any walk in front of the house; and, if so, what was that made of?

A. There was, laid with brown stone and silver-grey flagging. A great many of them were very large stones; they generally used to come 5 feet by 4; some were smaller—3 by 4, and some 3 by 2; that is the way they used to run.

Q. 17. Is Mr. Willoughby alive; and, if so, where does he live?

(Objected to as leading and incompetent.)

854 A. He is alive, and his residence is at Saratoga.

Q. 18. Does he stay at Saratoga all the year; and, if not, where is he residing now?

(Same objection.)

A. No; only about three months in the year. The rest of the year he is boarding around at different hotels. He used to stop at the St. Nicholas when he was here, but now puts up at the Fifth Avenue Hotel. At present, I think, he is in Philadelphia.

Q. 19. Do you know his handwriting? And, if yea, state how you have come to know it.

(Same objection.)

A. Yes, sir; through business relations. I receive letters from him once a month and sometimes twice a month.

Q. 20. What business relations do you refer to?

A. Our transactions amount to several thousand dollars every three months. I take care of all his property in Brooklyn and collect his rents, and we settle every three months.

Q. 21. Please look at the letter and envelope I now hand you and state in whose handwriting the same are, if you know.

(Same objection.)

A. Samuel A. Willoughby's.

(Complainant's counsel offers letter and envelope in evidence, and same is put in evidence and marked Complainant's Willoughby Exhibit, January 28th, 1874, R. E. S., Ex'r.)

(Offer of letter and envelope in evidence objected to as incompetent.)

Q. 22. Mr. Willoughby, in his letter just shown to you, speaks of the stone pavement or flagging running from the gate upon Fulton avenue to the front door as being the only stone flagging, and that all the other walks were gravel. How is your recollection on that subject?

(Objected to as incompetent.)

A. My recollection is that there was a flagging walk about two feet or 2½ feet wide, running from the back stoop to the stable fronting on Willoughby street, but it is so long ago that I may be mistaken about it.

855 Q. 23. Do you know Charles A. Denike and Thomas S. Denike or either of them; and, if yea, how long have you known them?

A. Yes, sir; I know them both. I have known them for about 30 to 32 years.

Q. 24. Are they both now living; and, if so, where do they now live?

A. I have never heard of their deaths. Charles I haven't seen for some years. Thomas I see every few days. Thomas S. lives in Brooklyn, somewhere in the neighborhood of Grand avenue, between Atlantic street and Fulton avenue. Charles used to live in New York.

Q. 25. Was the Willoughby mansion rebuilt on the same grounds; and if not, were any other buildings erected there?

A. There was two frame buildings erected there on the same ground after the mansion was burnt.

Q. 26. Do you know if any one had charge of the repairs or other work at the Willoughby mansion during the time you were acquainted with the premises until the time it was burned down; and, if so, who?

(Objected to as leading and without foundation.)

A. No, sir.

Being cross-examined by Mr. BRIESEN, deposes and says:

X Q. 27. When were the two framed buildings mentioned by you erected on the grounds formerly occupied by the Willoughby mansion?

A. I don't think I could tell with certainty, but I think it was soon after the mansion burned, I think.

X Q. 28. How were they erected, close together or on what part of the grounds?

A. They was all framed together same as one double house, but there was one hall in the centre. I suppose they were about forty feet front.

X Q. 29. If there was one hall in the centre the new structure was actually one house, was it not?

A. I think it was at the time it was first built. I am not sure, but I think it was, and afterwards turned around and fronted on Jay street and, I think, a partition put through the centre so as to make it two houses.

X Q. 30. You say the Willoughby mansion was burned down about 20 or 25 years ago. Can you ascertain the exact year in which it was burned and report the result of your research at the next examination here?

A. I think I can.

X Q. 31. Was the old Willoughby mansion a brick or a framed building?

A. A framed building.

X Q. 32. Was the new building which was erected in place of the old one after the fire also known as the Willoughby mansion?

856 A. No, sir; not to my knowledge; never was called the Willoughby mansion after the first one was burned.

X Q. 33. Who occupied the new building first, if you know?

A. I don't know.

X Q. 34. Were you never in the new building and about the grounds after the fire?

A. No, sir; not while they were owned by Mr. Willoughby, but I have been on the grounds since the fire frequently. I was there at the fire and the day after the fire.

X Q. 35. Were you ever in the new building?

A. No, sir; not while owned by Mr. Willoughby.

X Q. 36. How long did Mr. Willoughby own that new building—about, until when?

A. I don't think I can answer that question. He sold them some years afterwards in lots.

X Q. 37. Can you ascertain how long Mr. Willoughby owned that new building? And, if yea, please do so.

A. I think I can do so.

X Q. 38. Do you know whether Mr. Willoughby himself ever occupied that new building?

A. I don't really know; he might have occupied it for awhile.

X Q. 39. Since when have you been in business connection with Mr. Willoughby?

A. If my mind serves me right, some twelve or fifteen years; some little before that, maybe.

X Q. 40. Is he the gentleman known as "Lord Willoughby" in former years?

A. Yes, sir; he used to go by that name in Brooklyn; it was a sort of nickname.

X Q. 41. You say at present Mr. Willoughby is in Philadelphia. Do you know his address at Philadelphia?

A. I have got it in my book at the office, but I don't know which hotel it is, but I could tell at the office.

X Q. 42. Do you think it is the Girard Hotel?

A. I think it is.

X Q. 43. Do you know on what part of the ground the water-closet was after the fire?

A. I think, to the best of my ability, there was a closet east of the stable; that would be nearer Lawrence street than Jay.

X Q. 44. But along Willoughby street, do you mean?

A. No, sir; the stable was on Willoughby street; the stable was probably fifty or sixty feet long.

X Q. 45. What became of that stable?

857 A. I think, to the best of my ability, Thomas Denike cut it in two and put one on the corner of Lawrence and Willoughby streets and the other corner of Jay and Willoughby streets. That was quite a good while after the fire—after the property changed hands and was cut up into lots.

X Q. 46. The new building fronted on Fulton avenue, did it not?

A. On Fulton avenue; yes, sir.

X Q. 47. And was not the water-closet immediately in the rear of the building, though some distance from it?

A. I don't think I could hardly answer that, as I wasn't on the grounds frequently enough to see. I should think it was, because

the stable was taken away; but I couldn't state particularly about that, because I don't recollect ever having gone in to see how it did stand after the new building was finished.

Adjourned to Tuesday, February 3d, 1874, at 11 a. m.

TUESDAY, *February 3d*, 1874.

Present: Counsel for both parties.

Continuation of the examination of BENJAMIN BALDWIN:

The witness desires to make a correction. He says as follows:

I wish to say that on the ground that the mansion was burned the property was not rebuilt; it was sold into building lots, I think; Nehemiah Mason, I think, bought the property from Judge Pierrepont and built stores and dwellings on it—a portion of it; not all of it.

X Q. 48. Did you ascertain when that mansion was burnt?

A. I did, as near as I could. It was burnt on the 5th of July, the night we kept the fourth on, Sunday being the fourth, in the afternoon, in 1848 or 1849; I could not state it exactly.

X Q. 49. Did you find out when Mr. Willoughby sold that property which is bounded by Fulton avenue, Willoughby street, Jay, and Lawrence streets?

A. I did not.

X Q. 50. Did you try to ascertain that?

A. I did not.

X Q. 51. Can you ascertain when he sold it from your books?

A. No, sir; not from my books; I suppose Judge Pierrepont knows all about that.

X Q. 52. What became of that property mentioned in question 49 directly after the fire?

858 A. I think, if my memory serves me right, there was nothing done with it till Pierrepont fixed it up in lots and sold it to different parties.

X Q. 53. When, about, did Mr. Pierrepont fix said property in lots and sell it?

A. It was some time after the fire; I couldn't say whether it was a year or two years.

X Q. 54. Describe, if you can, the order in which buildings were erected on said property—the kind of buildings and the time when they were erected, respectively.

A. I couldn't tell the times when they were erected; they were erected at different times and along. I begin with the house on the corner of Jay and Willoughby. It is a frame house, which used to be Mr. Willoughby's coach-house—part of it. Then, eastward from Jay street, along Willoughby, there was a row of brick houses put up; Thomas S. Denike built them, I think. Then, coming to the corner of Lawrence and Willoughly, was the other part of Mr. Willoughby's coach-house and stable—a frame building, which stands there yet. That was the work of Thomas S. Denike, too. He

cut the stable in half and moved one-half to one corner and the other to the other corner. Then southerly, west side of Lawrence street, was several brick houses put up. Then continuing with some five brown-stone-front houses belonging to Judge Pierrepont. Then two mastic-front houses on the rear of the lot in Fulton street. Then the corner of Fulton and Lawrence was built up with a brick house, with mastic front and sides. Then, from the corner and running along on Fulton street, was a continuation of three or four brick houses, with mastic fronts. The work, I think, was done by James Stevenson; the owner, I think, was Fairweather, a New York lawyer. The next was the property Nehemiah Mason, built with marble fronts, four stories high. The corner of Fulton and Jay was a vacant lot owned by Judge Pierrepont. Subsequently Nehemiah Mason bought and built on it, which gave him nearly the half of the block on Fulton street. On Jay street, beginning at the corner, there was ten feet of vacant ground, which since has been built up. The rest of the block is built up with three-story brick houses up to the corner where we started from. I think they were built by Thomas S. Denike.

X Q. 55. Which of these brick or stone houses were erected first?

A. I think the stone fronts were the last erected. The first was the stable, cut in two and moved out on the corners; then the space between them was built up with brick houses along Willoughby street; that was the next, I think, if my memory serves me right.

X Q. 56. Do you know in what year, about, that that row of brick houses were erected along Willoughby street?

859 A. I don't know that I do. It might have been along in '51 or '52; but I couldn't tell the year exactly.

X Q. 57. Do you positively swear that there was not a mansion or larger building erected on the site of the burnt mansion previous to the erection of that row of brick buildings along Willoughby street?

A. I can swear, to the best of my opinion and belief, that there was none put up there afterwards.

X Q. 58. Have you ever seen the walk which extended from the mansion to the water-closet on the ground spoken of?

A. I have.

X Q. 59. When did you see it?

A. I suppose I saw it a year before it was burnt, or something like that.

X Q. 60. What kind of a walk was it?

A. I think it was the same as the other walks in the garden—dirt walk, with gravel on it—to the best of my opinion.

X Q. 61. Are you positive it was not a cement walk?

A. I am not positive of it, but, to the best of my opinion, I never saw any cement walk there.

X Q. 62. If you had seen a cement walk at that time—say in 1847 or 1848—would you have known it was a cement walk?

A. I think probably I should.

X Q. 63. But if the cement walk had been laid in sections, like flags, would you have known it to be a cement walk?

A. I think I should. They are rather a peculiar walk, and I notice them now if I walk over them.

X Q. 64. Had you ever seen a cement walk before 1847 or 1848?

A. I don't think I ever did.

X Q. 65. Then how would you have known a cement walk from any other if you had seen one on the Willoughby grounds?

A. I think they are pretty easily told from stone. I am kind of an observer and notice everything new.

X Q. 66. When and where did you notice the first cement walk?

A. The first I ever noticed of this was by a church in South Brooklyn—I don't know the street—I think probably a couple of years ago I have seen the common sidewalk kind—kind of concrete and cement together—in East Brooklyn, and I saw that about a couple of years ago, more or less.

X Q. 67. Will you positively swear that if a cement walk had been laid from the Willoughby mansion to the water-closet within, say, six months before said mansion was burnt that you would have noticed it?

A. No; I wouldn't swear positively to that; but, to the best of my belief, there was none there.

(Latter part of answer objected to by defendants' counsel as not responsive and as volunteered.)

860 X Q. 68. What reason have you to believe there was none there, if you cannot swear there was none there?

A. I think, as my memory serves me, if there had been one there I would have seen it. It's quite awhile ago and I can't charge my memory exactly with such things.

X Q. 69. Are you positive that you saw the walk between the Willoughby mansion and the water-closet during the last six months before the fire?

A. I don't think I did, to the best of my opinion.

X Q. 70. Are you positive that you saw it—that walk, I mean—during the last two years before the fire?

A. I might have seen it two or three times and I might not. I was often in there. I think John D. Lawrence could tell you all about it.

X Q. 71. Who is John D. Lawrence, and why do you think he knows all about it?

A. He is Mr. Willoughby's brother-in-law and he was there a great deal of his time; spent his evenings there frequently.

X Q. 72. Where is Mr. Lawrence?

A. He is in Brooklyn; keeps his office No. 9 Court street, upstairs.

Adjourned to 9th inst., at 11 a. m.

Further adjourned to the 16th, at same hour.

MONDAY, *Feb'y 16th*, 1874—11 a. m.

Present: Counsel as before.

Cross-examination of last witness resumed:

X Q. 73. In answer 48 you say that the Willoughby mansion was burnt in 1848 or 1849. How did you ascertain the year?

A. I ascertained it through John D. Lawrence and through several others with whom I talked.

X Q. 74. Was that your only means of ascertaining the date of the fire?

A. That is the best of my recollection. I was at the fire in the evening and on the next day.

(Answer objected to as not responsive and question repeated.)

X Q. 75. Cross-int. No. 74 repeated.

A. That is the only means I have. It is the best of my recollection, because I was there myself at the evening of the fire.

861 X Q. 76. Are you positive that the mansion was not burnt in the year 1851?

A. I am not.

X Q. 77. What was your business at the time of your casual visits to the Willoughby grounds—driver of a cart, or what?

A. As a public licensed carman; I had a two-wheeled cart.

X Q. 78. And your business at the Willoughby grounds was to convey loads of stones and wood to the same; was that it?

A. I don't know that I ever carted stones there; I carted wood there. Sometimes I used to run in and take a look at his horses. He was a great man for fancy horses. In driving past I would see the stable open and would go in and take a look at the horses.

X Q. 79. Did you not cart stones for David Anderson to the Willoughby grounds?

A. No, sir; not there, to my knowledge; I carted stone for him to other places, but never there, to my knowledge.

X Q. 80. What, then, did you mean when, in answer 14, speaking of your knowledge of the Willoughby grounds, you say, "I used to ride a great many stone for him (David Anderson) and most always used to take notice of such things, looking around?"

A. Well, I meant to say by that that when I carted flagging for him sometimes it would be blue flagging, sometimes red, sometims silver-grey flagging; he used all three kinds in laying the walks in Henry street, Hicks street, and other streets, and people would have their choice in those kinds or brick.

X Q. 81. Then, if I understand you right, your riding stone along Hicks and Henry streets, etc., did not in any way increase your knowledge of the condition of the Willoughby grounds, did it?

A. I don't know any more than what I have already said; I don't recollect ever seeing any cement flagging there.

(Objected to as not responsive by defendants' counsel.)

X Q. 82. Cross-interrogatory No. 81 repeated.

A. Not any more than what I have already testified to. I have,

since I was over here the time before the last, seen Mr. Willoughby and conversed with him on the subject of the flagging of the yard and what he had in there.

X Q. 83. When you rode wood into the Willoughby grounds——

(Witness here says:) I might state that in this conversation with Mr. Willoughby he told me that he never had such flagging in his yard as cement flagging.

(The statement of witness objected to by defendants' counsel as volunteered and hearsay.)

862 X Q. 83 (continued). Where did you enter the grounds and where did you leave them?

A. I went in on Willoughby street and came out the same way; they used to have a large gate there alongside of the stable.

X Q. 84. And where did you dump the wood?

A. I used to dump it inside, right near the stable, alongside of the walk, on a piece of vacant ground that was there.

X Q. 85. In answer 9 you say that there was a main walk from the house to the stable laid in flagging——

(Witness here interrupts counsel and says:) I said "I thought there was," in the direct testimony.

Counsel for the defendants objects to the above interruption as an improper interference with this examination, and requests the examiner to instruct the witness to confine his remarks to the answering of the question put to him.

X Q 85 (continued). And in answer 10 you describe that flagging, and in answer 15 you further describe it—whereas the letter, Willoughby Exhibit, states that there was no other stone pavement on the grounds mentioned except that running from the gate on Fulton street to the front door. Are you positive that there was a walk from the house to the stable laid in flagging?

A. I am not.

X Q. 86. When cross-examined on the 28th of January, 1874, you stated that on the site of the old Willoughby mansion there were, after the fire, erected two framed buildings, which at first were joined into one and then they were divided and turned around so as to front on Jay street; but this statement you have corrected on the 3d of February by declaring that the property was not rebuilt after the fire. How did you ascertain the fact which led you to make that correction?

A. I made it through John D. Lawrence, learning from him that it was a double house built there for his mother, a little south of the mansion, I think, a little this way; at any rate, towards the East River.

Further examination adjourned to February 25th, 1874, 11 a. m.

863 WEDNESDAY, *Feb.* 25, 1874.

Present: Counsel as before.

Continuation of the cross-examination of BENJ. BALDWIN:

X Q. 87. You say in your last answer that you learned from Mr. Lawrence that a double house was built on the Willoughby grounds for his mother, a little south of the mansion. Is that all you ascertained in regard to that double house?

A. I think that's about all.

Counsel for defendants gives notice that at the hearing of this cause he will move that the statement made by this witness immediately preceding X Q. 48 be stricken from the record and disregarded, because it is hearsay, and also because contradicting in answers 86 and 87 of this witness.

X Q. 88. Are you acquainted with a man by the name of Nathaniel G. Yerkes; and, if yea, how long have you known him?

A. I think I was acquainted with his father; he must be one of his sons; I don't know as I am acquainted with the son.

X Q. 89. Don't you know a man by the name of Yerkes, who used to be employed by Thos. S. Denike some 20 or 25 years ago and who is a mason?

A. I knew a man by the name of James Yerkes, who used to work for Thomas S. Denike, and I think he had a son who learned the trade of Thomas S. Denike, and worked there as a mason.

X Q. 90. How much older would you judge yourself to be than Yerkes' son who worked for Denike?

A. I can't hardly tell that; to the best of my knowledge, I am fifteen or twenty years older than he would be, but I am not sure about that.

X Q. 91. Have you any knowledge of the character of Yerkes' son which would induce you to believe him under oath or disbelieve him?

A. I have not—none.

B'N BALDWIN.

Subscribed and sworn to before me this 25th day of February, 1874.

R. E. STILWELL,
Examiner, &c.

864 TUESDAY, *April 28th*, 1874.

Present: Counsel for respective parties.

SAMUEL A. WILLOUGHBY, being called and duly sworn as a witness in behalf of the complainant, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. Samuel A. Willoughby; I am 74 years of age; my residence is at Saratoga Springs, N. Y.; I am a gentleman.

Q. 2. Did you formerly reside in Fulton avenue, Brooklyn, N. Y.?

A. I did.

Q. 3. Please describe the situation of the premises in which you resided there and state during what period you resided there.

A. I occupied the whole block bounded by Fulton avenue, Jay, Willoughby, and Lawrence streets. The house was very large, situated probably 75 feet from the front, on Fulton avenue. I lived there over fifteen years, down to the 24th day of March, 1850, at which time I left for Europe, leaving my son-in-law, Judge Pierrepont, in charge of the premises. I returned home, and my house was destroyed by fire on the 5th day of July, 1851, during the absence of the family. I was at Saratoga at the time.

Q. 4. Were there any walks in the garden or premises to and from the water-closet and between that and the house; and, if so, of what were they made?

A. The water-closet was in the house. There was a privy for the servants down by the carriage-house, in the rear of the premises. All the walks in the rear of my house were no other than gravel, as far as I can recollect, and I think — cannot be mistaken. One walk led from the house around a circular arbor to the privy and one beside the circular arbor to the privy.

Q. 5. What was done with the property after your house was destroyed by fire in July, 1851?

A. It was partly sold and partly built upon. It is all built up now and has been for some years.

Q. 6. Did you reside on those premises again after the 5th of July, 1851?

A. No.

Q. 7. Was there at any time while you occupied those premises any cement walk in the garden or premises?

(Objected to as leading and without foundation.)

A. No.

Q. 8. Please look at the letter marked "Willoughby Exhibit" and state if that letter was written by you.

865 A. Yes, sir; that letter was writteen by me; that is my signature.

Q. 9. Describe the character of the walks in front and on the sides of your house on Fulton avenue.

(Objected to as immaterial.)

A. I had two front doors, and there were two circular walks from the front gate to the two front doors. These were flagged walks made of silver stone. With the exception of those all the walks on my premises were of gravel.

(Latter part of answer objected to as volunteered.)

Q. 10. In what month and year did you return from your visit to Europe?

A. I think it was in the month of June. It was in the spring or early summer of 1851; I should say probably in May or June.

Q. 11. Did you stop at your house in Fulton avenue, Brooklyn, on your return at that time?

A. I did until I went to Saratoga.

Q. 12. Had there been any change in the character of the walks on the premises at your house made in your absence?

A. Not to my knowledge or belief. There were changes made in the house, but not outside.

Cross-examined:

X Q. 13. When was the water-closet placed in your residence?

A. When the house was built. It was somewhere between 1835 and 1840 that the house was built.

X Q. 14. What kind of a walk led from the house to the stable?

A. A gravel walk—the same as I have described.

X Q. 15. Is it not possible that a cement walk may have been laid to the privy without your taking any special personal notice of the change?

A. I think it not possible. It could not have been done without my knowledge.

X Q. 16. Was not the original gravel walk which led to the privy liable to be flooded or softened by water during storms?

A. No; no more than any ordinary gravel walk.

X Q. 17. Do you not remember that special complaints were made to the style of that walk for the reason stated in my last question?

A. I have no recollection of anything of the kind.

X Q. 18. What occasions, if any, caused you to inspect the walks to the privy during the last year or two of your stay?

A. I walked them every day. I did not particularly inspect, no further than seeing their condition when walking them every day.

866 X Q. 19. Will you positively swear that there was no cement walk laid on the premises referred to previous to March 24th, 1850?

A. If I can swear to anything positively I can positively swear to the best of my knowledge and belief that from the beginning to the end there were never any cement walks put down on any part of my premises.

X Q. 20. What do you understand a cement walk to be?

A. I should understand it to be a composition of various materials melted and run into the walk—a composition such as asphaltum and other materials. I have seen it being put down. I was always opposed to it. I never had any such made in my life. I never had any confidence in it. I can show you twenty places in Saratoga where it melts, is very soft, and full of holes. There is a new kind lately made, however, which is very good; there is a specimen in front of Judge Pierrepont's house that I have no objection to; it is as good as any stone. The material is furnished by Judge Pierrepont's son-in-law, Mr. Beckwith.

X Q. 21. Did you ever, on your premises, have a walk made of earthy matter that was merely mixed with water and then hardened?

A. Oh, no; I never had anything but the ordinary dry gravel walk. I never had any mixture of any kind. The only mixture there would be gravel and loam.

(Witness is shown a block and asked:)

X Q. 22. What would you call that?

A. A concrete. I am not conversant, however, on the subject; a mixture of gravel, lime, etc., I should say.

(Block offered in evidence by defendants' counsel and marked Def'ts' Exhibit No. 25, April 28th, '74, R. E. S., Ex'r.)

X Q. 23. Was there a double house erected on the site of your mansion subsequent to July 5th, 1851?

A. No; no buildings; but stores and dwelling-houses, on the entire block around.

X Q. 24. Please hear the officer read to you answer 86 of Baldwin's testimony given in this cause, and state how your memory agrees with Baldwin's on the matter referred to in said answer.

A. That house spoken of by Baldwin was on the next block and turned around after it was sold.

X Q. 25. Which block?

A. On the block bounded by Jay, Willoughby, and Fulton avenues—the next block west.

X Q. 26. Does the house which is known as the Willoughby buildings now stand on that block last named by you?

A. It does not; it is on the next adjoining block.

867 X Q. 27. By what streets are the Willoughby buildings bounded?

A. Bounded by Fulton avenue, Willoughby and Pearl.

X Q. 28. When was that house erected for Mr. Lawrence?

A. In the neighborhood of 1835. It was built before my house was.

X Q. 29. By what name was that house known?

A. As Mrs. Lawrence's mansion—Mrs. Lawrence's residence.

X Q. 30. Which house was known as the Willoughby mansion?

A. The house on the block bounded by Fulton avenue, Jay, Willoughby, and Lawrence streets.

X Q. 31. Are you the only Mr. Willoughby who occupied or owned that house?

A. I am the only Mr. Willoughby, and always was the only Willoughby who owned that house.

X Q. 32. Mr. Baldwin, in answer No. 22, testified that there was a stone walk from the house to the stable; what is your recollection?

A. I say that there never was any stone walk in the rear of my premises, and that Mr. Baldwin is mistaken.

X Q. 33. Mr. Baldwin, in his answer 5, stated that he could find the year in which the Willoughby mansion was burned, and upon an adjourned day of his examination he stated that he did ascertain, and that the house was burned in 1843 or 1849, as near as he could tell. Are you certain it was burned in 1851?

A. It was burned on Monday, the 5th day of July, 1851, about 9 o'clock in the evening. This I would swear to positively, as I got a telegram about it somewhere between 9 and 10 in the evening, at Saratoga. The 4th of July was on Sunday and the 5th was Monday.

X Q. 34. Do you know that the 4th of July, 1851, fell on Friday?

A. I do not.

X Q. 35. Are you as positive that the 4th of July, 1851, was on a Sunday as you are that there was no cement walk on the Willoughby premises?

A. No, I am not; but I am pretty well satisfied of it. I know there was no cement walk, but I may be mistaken as to the day of the week, but I don't think I am.

X Q. 36. Are you sure that mansion was burned on a Monday?

A. I think I am, and I think it was the 5th of July.

X Q. 37. Are you sure that the mansion was burned in the year 1851?

A. I think I cannot be mistaken about it.

X Q. 38. When last, before 1850, did you leave this country for Europe?

A. I was in Europe in 1828. I never visited it again until 1850; since then I have crossed several times.

X Q. 38*. When next after 1850 did you leave for Europe?

A. I am not quite sure whether I went in the latter part of 1851 or 1852; one or the other.

868 X Q. 39. Don't you know the date of your departure?

A. I do not.

X Q. 40. By what do you know the date of your departure in the year 1850?

A. By my recollection. It was the first time I had crossed since 1828, and because it was a pleasant voyage and in the month of March.

X Q. 41. Was the 24th day of March, 1850, a Friday?

A. I do not know.

X Q. 42. Were you in this city between the 3d and 16th days of February, 1874?

A. I think it likely; I can't tell positively, as I kept no account of the days.

X Q. 43. Did you know a person by the name of Charles A. Denike?

A. I did.

X Q. 44. Was he charged with masonry and other jobs in your premises?

A. He may have worked there with his brother; I knew very little about him.

X Q. 45. From whom would he receive his orders for doing your jobs?

A. From his brother, I presume. I do not recollect any orders that I gave him.

X Q. 46. And from whom would his brother receive orders?

A. From me, of course, if I employed him.

X Q. 47. Invariably so?

A. I cannot tell. He may have received orders from my wife to do some certain little job. (The witness says:) I know that the 4th of July came on Sunday and was celebrated on the Monday following, whatever year it was, and it was on Monday night that my

house was burned, the night following the Sunday which I say was the 4th of July.

X Q. 48. Are you positive that you returned from Europe in the year 1851?

A. I am quite positive.

X Q. 49. And you are also positive, are you, that the Willoughby mansion was burned on Monday, the 5th of July of the same year in which you returned from Europe?

A. I am not positive about that; my judgment was that it was 1851, but it may have been 1852.

Adjourned to the 29th, at 2 p. m.

869 WEDNESDAY, *April 29th*, 1874—2 p. m.

Present: Counsel for respective parties.

It being 40 minutes after the time when the examination of Samuel A. Willoughby was adjourned to this day and said witness, Willoughby, not appearing—

Counsel for defendants gives notice that he is informed that the witness is about to leave the city for a place in which a process of subpœna from this court could not reach him, and therefore requests counsel for complainant to have a subpœna served on said witness without delay so that his deposition may be completed before he leaves.

Counsel for complainant states that as the witness yesterday, at the time of the adjournment, stated that he intended to go over to Brooklyn this morning, and while there would endeavor to refresh his recollection concerning the matters enquired of him on his cross-examination, and as this morning was very stormy and as Mr. Willoughby is at a very advanced age, it is possible that he has been detained on account of the storm, and that if the witness does not appear to-day counsel for complainant requests the examiner, when this meeting is adjourned, to adjourn the examination of witness until to-morrow morning at 11 o'clock.

Counsel for defendants declares himself willing, at any time during the stay of the witness in this city, and in view of the advanced age of witness referred to by complainant's counsel and his consequent infirmity, to continue the cross-examination at the residence of the witness in this city, the Fifth Avenue Hotel; and counsel renews his request that measures be taken to insure the attendance of the witness before he leaves New York.

Adjourned, in accordance with foregoing request, until Thursday morning, April 30th, 1874, at 11 o'clock.

870 THURSDAY, *April 30th*, 1874.

Present: Counsel as before.

The witness, wishing to correct his testimony, says:

Instead of my having left New York for Europe on March 24, 1850, I think it was 24th—perhaps 23d—February, 1850; and in-

stead of my house being burned in 1851, it was my carriage-house that was burned in that year, and that my mansion was burned Monday, July 5th, 1852.

X Q. 51. Please relate briefly your places of residence in this country between February, 1850, and July, 1852.

A. At home, New York, Newport, Saratoga, Philadelphia, Washington city, St. Louis, New Orleans, and Havana.

X Q. 52. When did you return from Europe in 1851, and when next did you leave for Europe?

A. I think I returned in the spring of 1851. I went to Europe again in the autumn of 1852, and returned again in the spring of 1853.

X Q. 53. When, about, did Judge Pierrepont divide your mansion into two houses?

A. While I was in Europe, between 1850 and 1851.

X Q. 54. Do you remember that portion of your property on which the mansion stood, to wit, a strip extending along Willoughby street from Jay to Lawrence, to a depth of 90 feet, was sold before your mansion burned down; and, if so, when was it sold?

(Objected to as immaterial.)

A. I don't know anything about it; Judge Pierrepont had charge of it.

X Q. 55. What buildings stood on that property when the mansion was burned?

A. If I recollect right, there was none on that ground, except the two at the corner, when the mansion was burned.

X Q. 56. You mean the two which were occupied by Mrs. McKew and Mr. Underhill, respectively?

A. I think Mr. McKew lived there; I don't know who lived in the other.

X Q. 57. Then you do not remember that, in 1851, that portion of the ground which was mentioned in my question 54 was sold, and that on that portion so sold the old privy stood, and that the purchaser of those ninety feet had to construct a new privy on the ground not sold, and new walks to that new privy, do you?

A. I only recollect the old privy probably stood within those dimensions—ninety feet. I know nothing about the rest.

871 X Q. 58. Did I understand you to say that the old privy stood nearer Lawrence or nearer Jay street?

A. Nearer Jay—I suppose within fifty feet of Jay.

X Q. 59. Do you not remember that there was a gate on the Lawrence-street side, and that the old privy stood between that gate and the arbor?

A. I do not; I know there was no gate on Lawrence street.

X Q. 60. Do you remember a controversy about a safe that remained in the burned stable, and which you desired the purchaser of the ninety feet mentioned by you to surrender?

(Objected to as immaterial.)

A. I never saw the purchaser; I don't know anything about the purchase; all I remember, I found the safe in Gen. Manly's possession and demanded payment, which he refused, saying he bought it and paid for it.

X Q. 61. Did you ever reside in your mansion after Mr. Pierrepont had divided the same?

A. Yes, sir; a short time. I was there off and on.

SAM'L A. WILLOUGHBY.

Subscribed and sworn to before me this 30th day of April, 1874.

R. E. STILWELL, *Examiner, &c.*

Adjourned to June 2d, at 11 a. m.

872 U. S. Circuit Court, Southern District of New York.

JOHN J. SCHILLINGER

vs.

HERMANN A. GUNTHER and HELENA WULFING.

NEW YORK, TUESDAY, *June 2d*, 1874.

Present: Counsel as before.

EDWARDS PIERREPONT, being duly sworn as a witness on the part of complainant, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. Edwards Pierrepont; age, 57 years; residence, New York city, 103 Fifth avenue; occupation, lawyer.

Q. 2. Are you related to Samuel A. Willoughby, who formerly resided in Brooklyn, on the premises bounded by Fulton Ave., Jay St., Lawrence St., and Willoughby St.?

A. I am his son-in-law.

Q. 3. Were you familiar with the premises mentioned in the last question and with the character of the walks in its grounds? And, if so, please state what opportunities you had for becoming acquainted therewith before the Willoughby mansion on those grounds was destroyed by fire.

A. I knew the premises as early as 1835. I lived on the premises and had the sole charge of the same between the last part of 1849 and the time of the destruction, in July, 1852. Anything relating to the walks or the premises after the autumn of 1849 until the destruction in 1852 I know about, having had exclusive charge of the same during the period last mentioned, and having resided upon the same during the whole of that period.

Q. 4. Was there during that period in which you had such charge of the premises any walks laid therein from the house to the water closet or privy, or elsewhere therein, made of cement?

(Objected to as leading.)

A. I have not the slightest recollection of any, and, as nothing was laid or done upon the premises during that time which I did

not personally pay for, my best recollection is that no such thing was ever laid during that time.

873 Q. 5. Have you any recollection of a mason or workman by the name of Yerkes making any walk in the premises of the Willoughby mansion during the period you had such charge thereof or repairing any walk therein?

A. I have no such recollection.

Q. 6. About how far was the privy or water-closet in said premises distant from the rear of the house?

A. The family water-closets were in the house itself; there was a privy by the side of the stable, which was on Willoughby street, about fifty feet from the rear of the mansion..

Cross-examined:

X Q. 7. Did that privy originally stand within ninety feet of Willoughby street?

A. I never knew in but one place, and that was within twenty feet of Willoughby street.

X Q. 8. Near Jay or Lawrence?

A. Nearer Jay.

X Q. 9. Did you sell to Thomas Denike, in the year 1851, all that portion of the block aforesaid which stands along Willoughby street to a depth of ninety feet or thereabouts?

A. I don't remember, without looking at the deeds, the depth; I know it was less than a hundred feet, and I know I sold this strip on Willoughby street, but whether it was in 1850 or 1851 I could not tell without looking at my record; but I should think, from recollection, it was in one of these years; I should not think it was earlier than 1851, but could not be positive without looking at the record.

X Q. 10. Do you remember that Mr. Denike had almost completed the row of houses along Willoughby street at the time the Willoughby mansion was burned?

A. I should think that was so; but the exact condition towards completion I do not remember.

X Q. 11. Do you remember that Mr. Denike had erected a fence between the Willoughby property and the strip purchased by him previous to the destruction by fire of the mansion?

A. That is my recollection.

X Q. 12. Do you remember that by the construction of the fence aforesaid the old privy came into the boundaries of Mr. Denike's property, and that you employed Mr. Denike to prepare a place on the Willoughby grounds for the erection of a new privy there or the replacement of the old?

A. In 1850, beginning, I think, in May, I employed Mr. Denike to build an addition in the rear of the old house, and divided
874 the addition and the old house in the centre, making two houses with the old and the new, and in the rear of the new, near Mr. Denike's fence or boundary, he erected a new privy, having two parts, one for the west house and the other for the east, forming one privy building, but divided in the centre for the use of the two

houses. This was completed before cold weather, in the autumn of 1850.

X Q. 13. Did this new privy stand nearer Jay or Lawrence streets?

A. It was so near the centre that I could not recall which street it was nearest to.

X Q. 14. Being placed nearer the centre of the lot and further away from Willoughby street, did not this new privy require the arrangement of new approaches or walks—one to each of its two entrances?

A. It did, but changed by reason of the addition—changed the walk which went to the old privy.

Q. 15. Who laid those walks?

A. Thomas S. Denike did all the work for me, and I paid him. I have no recollection of having employed any other man or of having paid any man.

Q. 16. Might it not have been Charles Denike who laid those walks for you, under the supervision of Thomas S. or otherwise?

A. I don't think it might have been. I knew Thos. S. Denike well; I employed him to build a great many houses. I have now all the bills and all the checks, I believe, for all the work which has ever been done upon the place, and it would be quite contrary to my recollection if I ever paid Charles Denike any bills; indeed, until to-day I had no recollection of ever having heard of any such name, and, though I recall Thomas S. Denike and should know him in a moment, I have no recollection of ever having known a man named Charles Denike.

X Q. 17. Then you simply don't know that Thos. S. Denike was in the habit of employing his brother Charles to superintend his jobs, hire his laborers, etc.; is that it?

A. I don't know that he was, and I don't know that he was not. I have no knowledge whatever on that subject.

X Q. 18. Have you a positive recollection of the material of which the new walk mentioned in your answer 14 was composed?

A. I have not.

X Q. 19. Will you swear that it was not cement?

A. No; I will swear to nothing about which I have no recollection. I have no recollection of any cement walk upon the place, nor have I any recollection of whether the walk to the new privies which I erected were of any specific material.

X Q. 20. If the laborer who laid that walk would state to you that he remembers positively that he laid that walk down
875 with cement would you have any reason, from your present recollection of the subject, to disbelieve him?

(Objected to as immaterial and calling for an opinion.)

A. The only reason that could affect my belief would be that I cannot recall the slightest memory of ever having seen a cement walk upon the place, and as I don't know the man, and as the time was 24 years ago, I know it would be easy for the man or for myself to be mistaken.

X Q. 21. Is the error in your answer 7 due to a misconstruction of the sentence or to forgetfulness?

A. To neither; it is not an error. The one relates to the premises in 1849, before I made the addition.

Q. 22. Was your answer 5 given with reference to the name of the laborer mentioned in the question or to the facts recited therein?

A. I had then and have now no recollection either of the laborer or the facts recited therein.

Redirect:

Re-D. Q. 23. Who occupied the two dwellings into which the Willoughby mansion was divided, as you have stated, from the time of such division until they were burned?

A. I occupied the east and the Rev. Dr. Bethune occupied the west.

Re-D. Q. 24. Was the garden or grounds of the mansion also divided by any fence when you divided the mansion?

A. The rear grounds were divided by a fence; the front grounds were separated by a hedge.

Recross:

Re-X Q. 25. What kind of a hedge?

A. Arbor vitæ.

Re-X Q. 26. Was the fence which divided the rear portion of the Willoughby property from the house to the Denike fence solid board or picket, or what?

A. As I recall it, it was solid board, but if anybody should assure me that they positively remember that it was picket I could not be positive that it was not, although my recollection is very much the other way.

Re-X Q. 27. Do you know Mr. Thomas S. Denike as a truthful and high-toned gentleman? (An answer to this question is not insisted on, but only requested as a favor.)

(Objected to as irrelevant and no foundation exists in any of the preceding questions or answers therefor.)

A. I knew Mr. Denike many years. I had myself business with him. I have not seen him now for many years, but when I knew him I believed him to be a truthful, honest, and upright man, whom I greatly esteemed.

EDWARDS PIERREPONT.

876 Circuit Court of the United States, Southern District of New York.

JOHN J. SCHILLINGER

vs.

HERMAN A. GUNTHER and HELENA WULFING.

NEW YORK, WEDNESDAY, *Aug.* 12, 1874—11 a. m.

Present: J. Van Santvoord, solicitor and counsel for complainant; Otto Meyer, solicitor for defendants.

HELENA WULFING, a witness called and sworn for complainant, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. Helena Wulfing; age, 49 years; residence, Yorkville, No. 214 East 87th street; I am not engaged in any active business except that I am a partner in the firm of Rahmer, Schuffler & Co.

Q. 2. Is Julius Wulfing your husband?

A. Yes.

Q. 3. Do you know Herman A. Gunther?

A. Yes.

Q. 4. Did you ever lend him any money?

A. No.

Q. 5. Did he not give you some notes—promissory notes, I mean—about the 1st of May, this year, to settle his indebtedness to you?

A. No.

Q. 6. Did Mr. Gunther owe you any money or hold in his hands any money of yours about the 1st day of May, 1871, or previous?

(Objected to as immaterial by counsel for defendants.)

A. No.

Q. 7. Did you not become a partner with Mr. Gunther in the artificial stone business about May, 1871, or before that date?

A. No; we never had any talk together about business matters.

Q. 8. Did you not give permission to your husband, Julius
877–879 Wulfing, to put some of your money in the artificial stone business with Mr. Gunther in the year 1871 or '72?

A. My husband has perfect right to do with my money as he wishes. How he uses it and what he does with it he has authority; but I never gave him permission to invest it in Mr. Gunther's business.

Q. 9. Do you know that Mr. Gunther had some of your money in his business between the year 1870 and this date?

A. No; as I have already said, he, my husband, has perfect authority to do with my money as he wishes. My husband may have loaned him money without my knowledge; I know nothing about it.

Q. 10. Do you know if Mr. Wulfing, your husband, attended to Gunther & Co.'s artificial stone business at any time?

A. No; I know nothing about it.

Q. 11. Was you not at one time engaged in business at 460 Broome

street, New York, with Rahmer, Schuffler & Co., in the hat and cap business?

A. Yes; and we carry on business there now.

Q. 12. Does your husband, Julius Wulfing, attend to your business at that place in connection with said hat and cap business?

A. I know of no business matters; my husband attends to my business matters in that firm.

Q. 13. Did you not know that your husband also, during the year 1871, 1872, and 1873, attended to the business of Gunther & Co. at the same place where Rahmer, Schuffler & Co. carried on their hat and cap business?

A. I know nothing about it.

Q. 14. Have you never been a partner with Mr. Gunther in the artificial stone business?

A. No.

HELENA WULFING.

Subscribed and sworn to before me this 12th day of August, 1874.

JOHN A. SHIELDS,
Examiner, etc.

880 [L. S.] The President of the United States of America to John M. Wilson, consul of the United States of America at Bremen, Germany, Greeting:

Know ye that we, in confidence of your prudence and fidelity, have appointed you commissioner and by these presents do give you full power and authority diligently to examine, upon his corporal oath or affirmation before you to be taken and upon the interrogatories and cross-interrogatories hereunto annexed, John Drehmann, as a witness on the part of the complainant in a certain cause now pending undetermined in the circuit court of the United States of America for the southern district of New York, second circuit, wherein John J. Schillinger is complainant and Hermann A. Gunther and Helena Wulfing are defendants; and we do hereby require you, John M. Wilson, before whom such testimony may be taken, to reduce the same to writing and to close it up under your hand and seal, directed to Kenneth G. White, clerk of the said circuit court, No. 41 Chambers street, in the city of New York, United States of America, as soon as may be convenient after the execution of this commission; and that you return the same, when executed as above directed, with the title of the cause endorsed on the envelope of the commission.

Witness the Honorable Morrison R. Waite, Chief Justice of the Supreme Court of the United States, at the city of New York, this 15th day of April, in the year of our Lord one thousand eight hundred and seventy-four, and of our Independence the ninety-eighth.

(Signed) KENNETH G. WHITE, *Clerk.*

J. VAN SANTVOORD,
Compl't's Attorney.

The execution of this commission appears in certain schedules hereunto annexed.

(Signed) JOHN M. WILSON,
Commissioner.

881 Circuit Court of the United States, Southern District of New York. In Equity.

JOHN J. SCHILLINGER
ag't.
HERMANN A. GUNTHER and HELENA WULFING.

Interrogatories to be administered to John Drehmann, of Bremen, or late of Bremen, Germany, a witness to be produced, sworn, and examined under and by virtue of the annexed commission, before John M. Wilson, Esq., consul of the United States of America at said Bremen, the commissioner therein named, in a certain cause depending in the said circuit court, in the said district, wherein John J. Schillinger is complainant and Hermann A. Gunther and Helena Wulfing are defendants, on the part of the complainant.

First interrogatory. What is your name, age, residence, and trade?

Second interrogatory. Of what country are you a native?

Third interrogatory. Did you ever live in the United States of America; and, if you did, when did you arrive in that country and when did you leave it?

Fourth interrogatory. Was you ever in the employment of Bandmann and Holmann, manufacturers of artificial stone, at Weehawken, New Jersey, in the United States of America; if you was, when did you begin to work for them and when did you leave their employment?

Fifth interrogatory. Was there any cement sidewalk or pavement put down in front of Holmann's house, on Bergen Wood avenue, Union Hill, New Jersey, during the time you worked for Bandmann; and, if yea, when was it made and who did the work, if you know? Mention all the persons you recollect who worked at it at the time it was made.

Sixth interrogatory. Describe how that cement sidewalk was made, and state particularly whether it was made in one continuous piece or in separate blocks.

882 Seventh interrogatory. Was there any pavement at that place before that cement sidewalk was laid down? If there was a pavement there before what kind of pavement was it?

Eighth interrogatory. Do you know or can you set forth any other matter or anything which may be a benefit or advantage to the parties at issue in this cause or either of them or that may be material to the subject of this your examination or the matters in question in this cause? If yea, set forth the same fully and at large in your answer.

U. S. Circuit Court, Southern District of New York. In Equity.

JOHN J. SCHILLINGER *vs.* H. A. GUNTHER and H. WULFING.

Cross-interrogatories to be administered to John Drehmann, of Bremen, Germany, a witness to be produced, sworn, and examined under and by virtue of the annexed commission, before John M. Wilson, consul of the United States of America at said Bremen, the commissioner therein named, on the part and behalf of the said complainant.

First cross-interrogatory. In what business or work were you engaged while in the United States? State your several employments consecutively.

Second cross-interrogatory. How came you to be employed by Bandmann and Holmann?

Third cross-interrogatory. Are you acquainted with J. J. Schillinger, the complainant in this cause; and, if so, how came you to know him?

Fourth cross-interrogatory. How does said Schillinger know that you live in Bremen? Did you tell him that, or did you write to him from Bremen, or how does he know it?

883 Fifth cross-interrogatory. What caused you to appear as a witness to-day to give your testimony in this case? Produce the paper that caused you to come.

Sixth cross-interrogatory. Where is Holmann's house situated?

Seventh cross-interrogatory. How long is the pavement that was laid in front of Holmann's house, and on what street is it?

Eighth cross-interrogatory. How wide is said pavement?

Ninth cross-interrogatory. What kind of joists or frames were used in laying said pavement?

Tenth cross-interrogatory. If you used a cross-joint did you remove it from the cement to form a new space before the cement had "set?"

Eleventh cross-interrogatory. What do you understand by the term "set" in the last question?

Twelfth cross-interrogatory. What would be the effect of removing the joist before the cement had "set?"

Thirteenth cross-interrogatory. How many days did it take to make that pavement in front of Holmann's house, and in what year was it laid?

Fourteenth cross-interrogatory. How did you join the cement in the morning, on that pavement, to what had been made the day before?

Fifteenth cross-interrogatory. Will fresh cement when brought against set cement adhere to the set cement or not?

Sixteenth cross-interrogatory. Is it not an old thing to lay cement pavements in pieces or blocks; and, if yea, how old do you know it to be?

Seventeenth cross-interrogatory. State where first you have seen such cement pavements laid in blocks, and when.

Eighteenth cross-interrogatory. Have you written or received any

letters about this suit of Schillinger against Gunther? If so, please produce all you have received from Schillinger or his attorney.

Nineteenth cross-interrogatory. Did you receive a letter from H. A. Gunther in the summer of 1873 asking you to give your testimony in this cause; and, if so, why did you not reply to the letter, and why did you not testify as requested?

Twentieth cross-interrogatory. Please state all you know about cement pavements and cellar floors and how the same are usually laid—whether in frames or otherwise.

Twenty-first cross-interrogatory. Since when has cement been laid in frames on the ground to form blocks, as far as you know?

Twenty-second cross-interrogatory. Have you not frequently stated in the United States that you did not consider the Schillinger patent to be a good one?

Twenty-third cross-interrogatory. Have you ever laid cement pavements in blocks in the United States; and, if so, when first, and where?

884 Twenty-fourth cross-interrogatory. Have you ever been told or informed that, by laying cement in blocks, you infringe the Schillinger patent; and, if so, have you paid any attention to what was so told you?

Twenty-fifth cross-interrogatory. What did Heesch do to that pavement at Holmann's house?

—. ——.

Twenty-seventh cross-interrogatory. What did the boy Brüggemann do to that pavement at Holman's house?

Twenty-eighth cross-interrogatory. What did you do to that pavement at Holman's house.

Twenty-ninth cross-interrogatory. In how many pieces was that pavement at Holman's house when completed? Be careful to give a correct answer.

Thirtieth cross-interrogatory. Are you sure that that pavement was laid in 1869, or was it in 1870 or 1868?

Thirty-first cross-interrogatory. Did Schillinger, the complainant, visit you in Philadelphia just previous to your departure for Europe? If yea, state fully what took place at that time between you and him with relation to this suit.

Thirty-second cross interrogatory. Did you see said Schillinger in New York close previous to your departure for Europe? And, if yea, state fully what took place at that time between you and him with relation to this suit.

Thirty-third cross-interrogatory. Did said Schillinger on these occasions request you to be a witness for him in this cause? And, if yea, what did he offer you if you should testify in his behalf or against Gunther? State your full and complete knowledge of this matter.

Thirty-fourth cross-interrogatory. Do you know any other matter or thing not enquired after by these interrogatories which may tend to impeach the validity of the pretended claim of said Schillinger to be the first inventor of a cement pavement laid in blocks? If yea, set

forth all you know about such cement pavements laid in blocks and the history of the same.

A. V. BRIESEN,
Of Counsel for Defendants.

885 EXHIBIT A.

VAN SANTVOORD & HAUFF'S PATENT AGENCY,
41 PARK ROW (TIMES BUILDING),
New York City, den 16. April 1874.

Herrn John Drehmann,
Bremen.

Werther Herr!

Wir wünschen Ihr Zeugniß in Betreff des Cement pavements, welches Sie in Ihrem Brief vom Januar d. J. an Herrn Schillinger erwähnten, und wir schließen hiermit eine Abschrift jenes Briefes ein.

Ihr Zeugniß, welches Sie hier ablegen, soll in einem Prozeß des Herrn Schillinger benützt werden, und die Fragen auf Herrn Schillinger's Seite, sowie die Kreuz-Fragen von Seite der Gegen-Partei sind dem Am. Consul in Bremen, Herrn John M. Wilson, zugeschickt worden, welcher Ihre Antworten entgegennehmen wird. Geben Sie gefälligst nach dem Bureau jenes Herren sobald es Ihnen möglich ist, und derselbe wird Ihnen die Fragen und Kreuzfragen vorlegen.

Der Consul wird Sie für Ihre Bemühungen und Zeitverlust entschädigen.

In Erwartung Ihrer gefälligen Erfüllung unserer Bitte,
Zeichnen achtungsvoll
Van Santvoord & Hauff.

JOHN DREHMANN.

At the execution of a commission for the examination of witnesses, wherein John Dremann was examined as a witness for the complainant, John J. Schillinger, in his suit in the circuit court of the United States for the southern district of New York against Hermann A. Gunther and Helena Wulfing, this paper writing was produced and shown to John Drehmann, and by him deposed unto at the time of his examination before—

JOHN M. WILSON,
Commissioner.

886 EXHIBIT B.

Bremen.

Herrn J. Drehmann!

Ich bin vom New York Circuit Court beauftragt Sie in einer Klagesache Schillinger vs. Gunther als Zeuge zu vernehmen und ersuche Sie freundl. so bald wie möglich im Consulat vorzukommen.

Sollten Sie über Ihre Zeit verfügen können, so erwarte ich Sie morgen in den Vormittagsstunden.

Achtungsvoll
John M. Wilson,
U. S. Consul,
pr. J. W. Schnabel.

Bremen, Mai 4. 1874.

John Drehmann.

John M. Wilson, Commissioner.

At the execution of a commission for the examination of witnesses, wherein John Drehmann was examined as a witness for the complainant, John J. Schillinger, in his suit in the circuit court of the United States for the southern district of New York against Hermann A. Gunther and Helena Wulfing, this paper writing was produced and sworn to — John Drehmann and by him deposed unto at the time of his examination before—

JOHN M. WILSON,
Commissioner.

Depositions of witnesses produced, sworn, and examined the 7th day of May, in the year one thousand eight hundred and seventy-four, at the United States consulate at Bremen, Germany, under and by virtue of a commission issued out of the circuit court of the United States for the southern district of New York, in a certain cause therein depending and at issue, wherein John J. Schillinger is complainant and Hermann A. Gunther and Helena Wulfing are defendants.

JOHN DREHMANN, of Bremen, manufacturer of artificial stone, aged 36 years and upwards, being duly and publicly sworn pursuant to the directions hereto annexed and examined on the part of the complainant, doth depose and say as follows:

887 First. To the first interrogatory he saith: My name is John Drehmann; age, 36 years; residence, Bremen, Germany; occupation, manufacturer of artificial stone.

Second. To the second interrogatory he saith: I am a native of Hervinschwende, county of Erfurt, Kingdom of Prussia, Germany.

Third. To the third interrogatory he saith: Yes. I arrived in the United States on the 26th day of May, in the year 1869, and left in August, 1873.

Fourth. To the fourth interrogatory he saith: Yes. I was in the employment of Messrs. Bandmann & Hollmann; commenced to work for them in July, 1869, and left their employment in October, 1870.

Fifth. To the fifth interrogatory he saith: Yes; a cement sidewalk was put down there in the month of October, 1869. The work was done by myself and two laborers; one man Hesch; the other name I do not now recollect.

Sixth. To the sixth interrogatory he saith: The cement sidewalk was about one hundred feet long and from four to five feet broad, and was made of one continuous piece. There was no pavement there at this time, and we dug the ground up to the depth of four or five inches and then filled it up with broken stone, and upon this foundation we put our cement; we put it about three inches thick.

Seventh. To the seventh interrogatory he saith: There was no pavement there before the cement sidewalk was laid.

Eighth. To the eighth interrogatory he saith: This pavement was renewed, I understand, in the year 1870; I believe in May, but I do not know who did the work.

First. To the first cross-interrogatory he saith: I was first employed as a brick mason; was so employed about 14 days; I was then unemployed for about a month; I was then engaged by Bandmann & Holmann in the month of July, 1869 (one thousand eight hundred and sixty-nine), and remained with them to October, 1870; I then went into business at Philadelphia with Mr. George H. Welm in the manufacturing artificial stone, and was so engaged until August, 1873, at which time I left the United States for Germany.

888 Second. To the second cross-interrogatory he saith: I was out of work at the time and saw their advertisement in the paper desiring a man. I answered it and was employed by them.

Third. To the third cross-interrogatory he saith: Yes; I know him; became acquainted with him in Philadelphia; he called to see me just before I started for Germany.

Fourth. To the fourth cross-interrogatory he saith: At the time he called to see me I told him I was going to Bremen, Germany. I afterwards received a letter from him in October, 1873.

Fifth. To the fifth cross-interrogatory he saith: Owing to a letter I received from Messrs. Van Santvoord & Hauff, attorneys, which is hereto attached (marked Exhibit A) and also owing to my having received a notice from the American consul requesting me to come, hereto attached, marked Exhibit "B."

Sixth. To the sixth cross-interrogatory he saith: It is on Bergenwood avenue, Union Hill, New Jersey.

Seventh. To the seventh cross-interrogatory he saith: I do not know the exact length. It is, I think, about a hundred feet long.

Eighth. To the eighth cross-interrogatory he saith: It is about four feet wide.

Ninth. To the ninth cross-interrogatory he saith: We used a small cross-joist about four feet long, two and one-half inches wide, and two inches thick.

Tenth. To the tenth cross-interrogatory he saith: We removed it before the cement had set.

Eleventh. To the eleventh cross-interrogatory he saith: In about half an hour after the cement is laid the water in it evaporates and the cement then becomes hardened; that is what I understand by the term "set."

Twelfth. To the twelfth cross-interrogatory he saith: It would let that which was put down afterward join with the first.

Thirteenth. To the thirteenth cross-interrogatory he saith: I do not know exactly, but I think it took us about three days. It was in October, 1869.

889 Fourteenth. To the fourteenth cross-interrogatory he saith: We sloped the edge of the cement back about three inches and made cuts in the slope with our trowels and then laid the new cement on the top of this at the place on the top where the old and new cement joined together; we used our floats, and after having wet the old cement rub it and the new together.

Fifteenth. To the fifteenth cross-interrogatory he saith: It will adhere, but not so fast.

Sixteenth. To the sixteenth cross-interrogatory he saith: I do not know; the first pavement of this kind I saw in the United States.

Seventeenth. To the seventeenth cross-interrogatory he saith: The first I saw was, to the best of my recollection, at Castle Garden, New York city, in the latter part of the year 1869 or the first of 1870.

Eighteenth. To the eighteenth cross-interrogatory he saith: The only letter I have had from his attorneys is hereto attached. I received one from Mr. Schillinger, but cannot now produce it, as it is lost or destroyed.

Nineteenth. To the nineteenth cross-interrogatory he saith: I was informed by my partner just about the time I was leaving the United States for Germany that there had been a letter received from Mr. Gunther. I do not recollect what the contents of it was, as I think I never read the same.

Twentieth. To the twentieth cross-interrogatory he saith: Cellar floors are usually laid all in one piece and no frames used; pavements are usually laid in blocks.

Twenty-first. To the twenty-first cross-interrogatory he saith: I think since about the spring of 1870.

Twenty-second. To the twenty-second cross-interrogatory he saith: I never used the Schillinger patent. I did not do so, because I feared it would be an infringement on his rights and that he would hold me liable for it.

Twenty-third. To the twenty-third cross-interrogatory he saith: I have laid block pavements, but not the kind that Mr. Schillinger lays.

890 Twenty-fourth. To the twenty-fourth cross-interrogatory he saith: In the way I laid the pavement no one ever told me that I was infringing on Mr. Schillinger's patent.

Twenty-fifth. To the twenty-fifth cross-interrogatory he saith: He was the laborer and mixed the cement.

Twenty-seventh. To the twenty-seventh cross-interrogatory he saith: I do not recollect that there was a boy there at all.

Twenty-eighth. To the twenty-eighth cross-interrogatory he saith: I laid the cement.

Twenty-ninth. To the twenty-ninth cross-interrogatory he saith: This pavement was in one continuous piece, with the exception of a wooden gutter about the centre of it.

Thirtieth. To the thirtieth cross-interrogatory he saith: I am sure it was in 1869.

Thirty-first. To the thirty-first cross-interrogatory he saith: Yes; I saw him just before I came away. He asked me what I knew about this Bandmann & Holmann sidewalk; also at what time I laid it, and how many pieces it was in. I told him it was in 1869 I laid it, and that it was all in one piece.

Thirty-second. To the thirty-second cross-interrogatory he saith: I saw him in New York. I was on the steamer "Hermann," just before we sailed for Bremen; he wanted to know where I was going. I told him to Bremen, Germany.

Thirty-third. To the thirty-third cross-interrogatory he saith: He

never asked me to be a witness for him, nor offered me anything if I would testify in his behalf.

Thirty-fourth. To the thirty-fourth cross-interrogatory he saith: I have always understood that Mr. Schillinger was the inventor of cement pavements laid in the United States, and I know of no other person laying them before him in that way.

JOHN DREHMANN.

Examination taken, reduced to writing, and by the witness subscribed and sworn to this seventh day of May, 1874, before—

JOHN M. WILSON,
Commissioner.

891 Circuit Court of the United States, Southern District of New York. In Equity.

JOHN J. SCHILLINGER
ag't
HERMANN A. GUNTHER and HELENA WULFING.

Upon reading and filing the stipulation and consent hereunto annexed, signed by Otto Meyer, the solicitor for the above-named defendants, Hermann A. Gunther and Helena Wulfing, in this action, and by J. Van Santvoord, the solicitor for the complainant, John J. Schillinger, on motion of Otto Meyer, the said solicitor for the defendants, it is hereby ordered that the said action be, and the same is hereby, discontinued as to the said defendant, Helena Wulfing, without costs to any of the parties to said action and without prejudice to the remaining parties, complainant or defendant therein, and that the pleadings, proceedings, and testimony heretofore had and taken in said action do stand, and that the said action continue and proceed against the said Hermann A. Gunther as the sole defendant therein, the same as if begun against him alone.

(Signed) SAM'L BLATCHFORD.

A copy.

KENNETH G. WHITE, *Clerk.*

We concur in this order.

(Signed) J. VAN SANTVOORD,
Compl't's Sol'r.
OTTO MEYER,
Sol'r for Def'ts.

892 *Stipulation Annexed to Foregoing Order.*

Circuit Court of the United States, Southern District of New York. In Equity.

JOHN J. SCHILLINGER
ag't
HERMANN A. GUNTHER and HELENA WULFING.

Whereas the said defendants are charged in the bill of complaint

in this action as doing business under the name or style of Herm. A. Gunther & Co.; and whereas the defendants by their answer deny that they have ever done business together under that or any other name; and whereas both the said defendants have been examined as witnesses in said action, and each has testified that the said Helena Wulfing has never had any interest in the business of the said Gunther nor been engaged in business with him; and whereas the said action is still pending undetermined in this court and no final decree or judgment has been rendered therein; and whereas the said Helena Wulfing desires that said action be discontinued as against her: Now, therefore, it is hereby stipulated and consented that the said action be discontinued as against the said Helena Wulfing without costs to either party and without prejudice to the remaining parties in said action, and that the pleadings, proceedings, and testimony heretofore had and taken therein do stand and the said action continue and proceed against the said Hermann A. Gunther as sole defendant, and that this honorable court is hereby requested to order accordingly.

New York, Aug. 28, 1874.

(Signed) OTTO MEYER,
Sol'r for Def'ts.
J. VAN SANTVOORD,
Sol'r for Compl't.

893 HEESCH EXHIBIT. (R. E. S., Ex'r.)

STATE OF NEW YORK, } *ss:*
City and County of New York, }

John W. Heesch, of No. 51 Garden street, Hoboken, New Jersey, being duly sworn, deposes and says that he knows Charles J. Bandmann, of the firm of Bandmann & Co., of the town of Union, Hudson county, New Jersey; that deponent began to work for the firm of which said Bandmann was a member about August, 1869, and continued to work for them until about the autumn of 1870; that when he first went to work for the said firm the firm was Bandmann & Hollmann, and afterwards it was Bandmann, Hollmann & Co., and then it was Bandmann & Co.; that while deponent worked for said firm the said firm did not lay any artificial stone pavement, so far as deponent knows, in blocks divided by wooden frames or which was lined on the edge with tar paper or straw paper or pasteboard; that deponent believes he knew all the sidewalks or pavements laid by said firm in artificial stone during the time he so worked for them, and all such pavement was laid, to the best of deponent's knowledge, information, and belief, in the ordinary way, in one continuous piece, without being laid in frames and without being lined along the edges with tar paper or other material for making joints for different blocks.

[L. S.] JOHN W. HEESCH.

Subscribed and sworn to before me this 4th December, 1871.
W. HAUFF,
Notary Public.

COMPLAINANT'S WILLOUGHBY EXHIBIT. January 28th, 1874. R. E. S., Ex'r.

PHILADELPHIA, *January* 13*th*, 1874.

J. Van Santvoord, Esq.

D'R SIR: In answer to the inquiry made in your letter of the 12th inst., just rec'd, I have to state that, to the best of my recollection, there was no stone pavement in my garden, in the block bounded by Fulton, Jay, Willoughby, and Lawrence Sts., before my house was burned, except the stone pavement or flagging running from the gate on Fulton Av. to the front door. All the other walks were gravel.

I am yours, SAM'L A. WILLOUGHBY.

894 Circuit Court U. S., Southern District of New York. In Equity.

JOHN J. SCHILLINGER *ag't* H. A. GUNTHER.

This cause being on the calendar for October term, 1874, and complainant having moved this court for leave to complete his rebutting testimony, it is hereby mutually stipulated and agreed as follows: That if, on the final hearing herein, on the present proofs, the court shall be of the opinion that upon the proofs the defendant is entitled to a decree dismissing the bill, but that the complainant, by taking further proof to rebut the testimony already taken on the part of the defendant to show use or knowledge of complainant's invention prior to the making by complainant of his alleged invention; or further proof as to the time of the making by complainant of his alleged invention; or further proof as to the action of plastic cement when laid next to other cement; or (in case the testimony of George L. Schmidt and Julius Hopke, witnesses for defendant, is admitted by the court at the hearing) further proof as to the conversations and transactions alleged by defendant's witnesses, George L. Schmidt and Julius Hopke, with complainant, relating to his alleged invention and as to their alleged previous discovery of said invention, might possibly secure a decision in this suit in his favor, then the complainant shall be allowed to take such further proof, provided he shall, within ten days after being notified of such opinion by the defendant, notify the defendant of an intention to take such further proof, and that the defendant shall have the right to take testimony in rebuttal strictly of any such further proof on the part of the complainant, and that after the taking of such further proof and testimony on both sides the cause shall be again heard upon such further proof and testimony, as well as the other proofs admitted in the cause and the pleadings, as soon
895 as may be at a subsequent term, and that meanwhile all proceedings by the defendant, in case such opinion shall be in

favor of a dismissal of the bill, shall be stayed until the second hearing.

November 2, 1874.

J. VAN SANTVOORD,
Compl't's Sol'r.
A. BRIESEN, *Def't's Sol'r.*

New York, Nov. 3, 1874.
(Signed) EDWARD FITCH,
Of Counsel for Complainant.

I think this covers the ground.
(Signed) S. B.

896 Circuit Court of the United States, Southern District of New York. In Equity.

JOHN J. SCHILLINGER *ag't* H. A. GUNTHER.

Upon reading and filing the stipulation hereto annexed, signed by Edward Fitch, of counsel, and J. Van Santvoord, the solicitor, for complainant, and Mr. Briesen, the solicitor for defendant, on motion of J. Van Santvoord, complainant's solicitor, it is hereby ordered that if on the final hearing herein on the present proofs the court shall be of the opinion that upon the proofs the defendant is entitled to a decree dismissing the bill, but that the complainant by taking further proof to rebut the testimony already taken on the part of the defendant to show use or knowledge of complainant's invention prior to the making by complainant of his alleged invention, or further proof as to the time of the making by complainant of his alleged invention, or further proof as to the action of plastic cement when laid next to other cement, or (in case the testimony of George L. Schmidt and Julius Hopke, witnesses for defendant, is admitted by the court at the hearing) further proof as to the conversations and transactions alleged by defendant's witnesses, George L. Schmidt and Julius Hopke, with complainant, relating to his alleged invention, and as to their alleged previous discovery of said invention, might possibly secure a decision in this suit in his favor, then the complainant shall be allowed to take such further proof, provided he shall within ten days after being notified of such opinion by the defendant notify the defendant of an intention to take such further proof, and that the defendant shall have the right to take testimony in rebuttal strictly of any such further proof on the part of the complainant, and that after the taking of such further proof and testimony on both sides the cause shall be again heard upon such further proof and testimony as well as the other proofs admitted in the cause and the pleadings, as soon as may be at a subsequent term, and that meanwhile all proceedings by the defendant in case such opinion shall be in favor of dismissal of the bill shall be stayed until the second hearing.

SAMUEL BLATCHFORD.

(Endorsed:) Filed February 18, 1875.

897 *Argument for Complainant.*

Circuit Court U. S., Southern District of New York. In Equity.

JOHN J. SCHILLINGER *vs.* H. A. GUNTHER.

This action is for the infringement of Mr. Schillinger's reissued patent No. 4364, issued to him May 2, 1871, for improvement in concrete pavements. The original patent is numbered 105,599 and dated July 19, 1870.

The action was brought against the present defendant and Helena Wulfing, but upon the joint stipulation of the solicitors for both parties an order was made by his honor Judge Blatchford to discontinue the action as to Helena Wulfing without costs to either party and that the same continue against H. A. Gunther as sole defendant. (Complainant's Record, pp. 158, 159.)

The bill of complaint sets out that Mr. Schillinger, the patentee and complainant, granted in December, 1870, an exclusive license under the original patent to the Schillinger Artificial Stone Company for the use of said invention for five years in the counties of New York and Westchester, New York, and on the 8th of October, 1872, before this suit was brought, that company transferred and surrendered to him all their rights under the patent and reissue and assigned to him all claims and demands and rights of action for damages for infringement which had arisen or accrued to the company. (See Compl't's Exhibits F and G, Compl't's Record, pp. 50–52.)

898 Complainant's patent was sustained in the supreme court of the District of Columbia in a suit in equity against the Portland Stone Company, decided December 30, 1871. (See Compl't's Exhibit B, pp. 42 to 48 of Compl't's Record.)

The patented improvement is a concrete pavement laid in a peculiar manner, as described, in sections, so that each section can be taken up and relaid without disturbing the adjoining sections. The invention is secured by two claims:

1. A concrete pavement laid in detached blocks or sections, substantially in the manner shown and described.

2. The arrangement of tar paper or its equivalent between adjoining blocks of concrete, substantially as and for the purpose set forth.

The patent describes that the improved pavement is made by laying the plastic mass on the place or bed where the pavement is required, so as to form separate and independent blocks, tar paper or equivalent material being placed along the edge of the first block and the plastic composition for the next block being put against the tar-paper joint, and so on, for each successive block or section.

By his invention the inventor is enabled to make a sectional artificial stone pavement, composed on the spot where required, of soft or plastic material, the sections or blocks being laid successively one after the other from such soft material, but yet isolated and independent by reason of the tar paper or equivalent joint along the

edges of the several blocks, so that any block throughout the whole extent of the pavement can be taken up without disturbing any other block.

If any section or block proves to be defective or is heaved by frost or becomes broken it can be taken up and a fresh one laid down from similar plastic material in the same manner as before, the isolation between the edges to form the joint being accomplished by the tar paper or other equivalent material originally interposed or by fresh tar paper.

The patent itself explains what the inventor means when he speaks of an "equivalent" to tar paper between the joints.

899 He means something to take the place of the tar paper—something which will fill up the joints or spaces between the separate blocks. Where cheapness is an object and the expense of interposing and leaving tar paper between all the blocks is objected to the inventor says the joints (between the blocks) "soon fill up with sand or dust," which "renders the pavement sufficiently tight for many purposes," while the blocks, being "detached from each other, can be taken up and relaid, each independent of the adjoining blocks," the same as if the tar paper used in isolating the blocks while forming them had been left interposed in the joints.

The complainant has introduced his invention largely into use.

See abstract of title of compl't's patent, Defendant's Exhibit No. 9.

See also A. Faber du Faur's deposition, answer 26, page 13 of Compl't's Record, and ans. 102, p. 24.

See also Nicholas Haas' deposition, answers 14, 20, 21, 22, 31 to 35, 36, 37, Compl't's Record, pages 30, 31, 32.

See Thomas S. Green's deposition, ans. 28, Compl't's Record, p. 91, and ans. 41, p. 93.

See John W. Heesch's deposition, ans. 242, p. 116.

Several instances of the infringement by defendant are proven.

A. Faber du Faur saw the defendant Gunther putting down pavements, the lower part consisting of "concrete blocks with tin-foil interposed between the joints. The top dressing was made in smaller divisions than the bottom part and formed with open joints, which were afterwards filled out with some substance, asphaltum, I believe, but I would not swear as to its being asphaltum."

(Compl't's Record, p. 10, folio 43; see also pp. 10 and 11, folios 44 to 49.)

Nicholas Haas testified that Gunther laid artificial stone sidewalk for him in 1872.

(See Compl't's Record, pp. 29 and 30, ans. 2 to 8.)

Mr. Haas says, ans. 4, "It was in November (1872), I believe—November or December."

900 Ans. 6. "It was made in kind of diamonds, you know, and some square pieces and some tin-foil put between the joints."

Ans. 7. "As soon as one stone was finished the tin-foil was put in and another one started."

Gunther laid a sectional sidewalk for Dunn in 1871.

Gunther's deposition, Def't's Record, p. 97, ans. 73.

Green's deposition, Compl't's Record, p. 95, ans. 61.

The Defense.

The answer of defendant sets up that the invention was communicated to complainant by one Charles J. Bandmann (Def't's Record, page 3, folio 10), but of this he has not offered any proof.

Russ's Patent.

The defendant also sets up letters patent of the United States to one Horace P. Russ, dated March 14, 1848, No. 5475.

Russ's invention consists of an under pavement or subconcrete bed, which is afterwards to be covered over in the street by the ordinary stone blocks, marked C in his patent, or by the ordinary stone flagging D in the sidewalk.

He does not contemplate and does not describe an artificial stone sidewalk or pavement made in blocks, but describes a foundation or bed of concrete which is to be covered over by the ordinary paving stone C for the carriage-way and by the ordinary stone flagging D for the sidewalk.

This concrete foundation bed would be a difficult thing to break up for access to sewers, and therefore his invention consists, further, in case there is a sewer or drain running along under the street, in laying over the line of the sewer a continuous length of concrete bed of proper width, and, further, in laying down, at proper distances apart over the line of the sewer, "bars of iron forming crosses *e* 1, with holes in them, through which they are united by an eyebolt, *e*, with a ring in the head of each bolt, as shown in figures 4
901 and 5, and in the larger panels two or more of these sets of bars, bolts, and rings may be used, while in the smaller panels one will be sufficient. The bolts employed for these purposes may be of a small extra length that will find place in the subsoil, and a counter-sink in the face of the concrete is to receive the ring. In this way, on applying power to raise the panel, the ring will lift clear of the face without breakage or injury to the concrete. The concrete is then to be filled in and consolidated, after which it may be lifted out of any panel or section, as may be required, by shears or derricks placed above with tackles hooked into the rings *e e*."

It appears from Russ's patent—

1. That he only contemplates making longitudinal divisions of concrete when there is a street sewer under the carriage-way or under the sidewalk.

2. That those longitudinal divisions of concrete are continuous and unbroken, except that here and there, at one or some selected points in the length of the sewer, a panel or section is made for the purpose of reaching the sewer.

3. That the panels or sections are made by means of metal frames imbedded in the concrete and provided with a sliding rod, which is driven into the ground when not required for immediate use, and which has an eye or ring that lays in a counter-sink in the surface of the panel.

4. The parts of the subconcrete bed which are not over a sewer are to be a continuous, uninterrupted body or mass, without any divisions, longitudinal or transverse.

5. If the street or sidewalk does not have any drain or sewer underneath there is not to be any such subconcrete bed.

6. The longitudinal divisions, when any are made, are produced by wood or metal frames *d d*, thicker at bottom than at top.

7. The shape of the longitudinal frames or pieces *d* ensures the breakage of the concrete bed, because the bottom presents a broad surface to the action of frost, and its wedge shape would inevitably cause its sides to lift and break the adjoining edges of concrete.

902 8. The subconcrete bed is covered over by stone blocks C and stone flagging D.

9. The Russ patent does not show a surface sidewalk or pavement of cement nor even suggest any such. The invention is for a concealed foundation for a street or sidewalk made of stone and stone flags C and D.

10. There is no evidence that this invention of Russ was ever used or put in practice, and it is evident on its face that it is impracticable even as a sub-bed or foundation on account of its expense.

The defense sets up also the British patent No. 12566, granted April 16, 1849, to one Piron; but that patent is for a construction of sheet-iron pipes filled with concrete.

Also the British patent No. 340, granted in 1854 to one Dupont de Bussac.

This patent is for a new composition of mastic or cement, which can be used as a coating for buildings, as a paint, or for roads, etc. It has no bearing on the subject in controversy.

Also the British patent No. 2659, granted in 1855 to Coignet for artificial stone and cement. This patent is for a composition.

Also the British patent No. 445, granted in 1859 to Fraissinet for a new structure of iron, etc. This patent is for an open frame-work or structure of iron filled with asphalte, concrete, etc., and has no bearing on this case.

Also the British patent No. 2690, granted in 1863 to Barnabus Russ for ships, vessels, batteries of war, etc. There are no drawings in this patent and nothing is found in the patent bearing on this case.

Also British patent No. 1080, granted in 1861 to John Little. This patent is for a metallic frame-work to be filled in with various substances, which remain permanently therein, and has no bearing on any question in this case.

Defendant's answer also sets up alleged prior use by Charles J. Bandmann, N. G. Yerks, Gottlieb Seyfang, John Nowak, and the defendant, Gunther.

903 We will examine their alleged prior use in the order of their examination in def't's record.

The Nowak Pavement.

At Gunther's office.

John Nowak, ans. 5, 6, and 7, page 11, Def't's Record, testifies that he worked for Mr. Gunther in 1869, and made the first sidewalk for him in August, 1869, in front of his office; that he had the order to lay it down in copular sections, different sections; that he used joists and filled up between, and when one section was finished he removed one joist about three feet further and finished it; smoothed it off with a trowel the same way as the first one; he made them even and smoothed it all over, and so on, five sections right through.

Ans. 3, p. 11. The first work he ever did in artificial stone was for Gunther, and (ans. 42, p. 17) this was the first sidewalk he ever laid of artificial stone.

It is clear from Nowak's deposition, as we shall see, that the pavement he had laid in 1869 at Mr. Gunther's office was not like and did not contain Mr. Schillinger's invention, but that, on the contrary, it was made in the old mode of laying cement flooring or pavement, which consists, as defendant's witness, Miller, describes it, ans. 28, page 109 of Def't's Record, in filling up "with the plastic cement or concrete from the wall to the joist so as to have an even thickness. As soon as that is set I remove the joists and do the same again. I float it all over the same way when I remove the joists from where the separation was. By floating I mean the finishing it with a trowel where the one is set or partly set and the other green, and so continue until I finish that space."

See also Bandmann's answer 20, page 48, Def't's Record.

Nowak says, ans. 73, Def't's Record, p. 21, as follows:

"73 X Q. Do I understand you that in laying that pavement at Mr. Gunther's office, when you had filled up to the level of the joist along its whole length, you removed the joist about three feet further on and then laid down fresh cement, beginning at the place where the joist had laid before and working out towards the joist again? Do I understand you aright?"

904 "A. I used only one joist on the second section, because the first section was just hard enough to straighten off and level the second section. You understand me aright."

"74 X Q. And so you kept on laying down the cement, every time removing the joist for the whole length of the piece of floor you were laying about three feet away, and again working up to the joist until the floor or pavement was finished. Was that the way you did it?"

"A. Yes, sir."

"75 X Q. You say in answer 7, 'I made them even and smoothed it all over.' Explain how you smoothed it all over."

"A. I took my trowel and finished the top off in one piece, because I had the order to do so."

"68 X Q. Page 124, def't's record (Nowak recalled). When that sidewalk or pavement in the front yard in front of Mr. Gunther's

office was all down did it not form a continuous pavement in one piece?"

"A. Yes, sir; it looked like one piece the day it was finished."

"69 X Q. And the places where the joists had been were all covered by cement, so that the whole pavement looked like one piece; was that so?"

"A. Yes, sir; I smoothed it all off like one piece."

Mr. Gunther himself shows that his pavement in 86th street was laid in the old mode. See his answer 16, p. 38, Def't's Record.

Gunther says, p. 39, as follows:

"20 Q. When did you first observe the joist between the sections of that pavement in 86th street?"

"A. After the concrete of which the sections were made had taken its full shrinkage, which was about a week from the day when it was bedded down."

"26 Q. (p. 40). State whether or not you then (when he put monuments on it) found the joists to be open along the entire length of division between the sections."

905 "A. In some parts I remember having seen it. Whether they did show an open joint around every section at that time I am not perfectly positive."

Defendant's witness, Dreyer, testifies that he had examined the Gunther pavement and found joints in there (Def't's Record, page 127, ans. 17, 18), but on cross-examination, he says:

"20 X Q. Were you present when that pavement at Mr. Gunther's office in 86th street was laid?"

"A. No."

"21 X Q. From your knowledge and experience in laying artificial stone pavement or plastic pavement are you able to judge from the appearance of the pavement at Mr. Gunther's office at the time you saw it last month whether it was finished in one continuous piece or otherwise?"

"A. I think it was laid in that way that it will be one piece after."

"29 X Q. You say that in your judgment that pavement at Mr. Gunther's office must have been finished off in one continuous piece. How do you account, then, for the appearance therein from the building to the sidewalk of the things you have called joints?"

(The words "must have been finished off in one continuous piece" erased from the question, and the words "was laid in that way that it will be one piece after" substituted before answer. See Def't's Record, p. 129.)

"A. The man that lay that pavement expects that it will be binding on the piece that he laid before."

"31 X Q. You say in answer 21 'I think it was laid in that way that it will be one piece after.' Do the joints, as you call them, come from the shrinking of the cement?"

"A. Shrinkage opens the joints."

"32 X Q. When this pavement was finished it presented the appearance of one piece, in your judgment. Was that so?"

"A. No; it never was one piece."

"33 X Q. Have you not testified here to-day 'I think it (referring to that pavement at Mr. Gunther's office) was laid in that way that it will be one piece after?'"

"A. Yes."

906 "34 X Q. You say in answer 29, 'The man that lay that pavement expects that it will be binding on the piece that he laid before.' Why do you judge so? Please hear the examiner read question and answer 29 before you answer."

"A. I expect that the top was smoothed all over, so as to show no joints."

"35 X Q. Why do you think that was so? Give your reasons."

"A. The joint on the top is not so exactly straight as further down below."

"36 X Q. How do you know that?"

"A. There was a place broken up, and I saw it there."

"41 X Q. You say in answer 35, referring to the pavement at Mr. Gunther's office, 'the joint on the top is not so exactly straight as further down below.' Why is that so that the joint on the top is not so exactly straight?"

"A. The top is smooth all over, and at first there was no joint on the top. Afterwards the joint below gets further open and breaks the little that is on the top."

"47 X Q. (page 131). You say that, in your opinion, the pavement in front of Mr. Gunther's office in 86th street was smoothed over on the top. To what thickness do you think it was smoothed over?"

"A. I couldn't tell exactly. I think it was a quarter or one-eighth of an inch."

"65 X Q. (p. 133). Suppose in laying a pavement or a cellar floor where it was desired to form all of one piece the workmen should fail to break up or roughen the edges where the joists were as the work proceeded, would not such pavement or floor be likely to crack open along the line where the joists had been and would not that line be the weakest part of the pavement or floor?"

"A. Yes."

Complainant's witnesses, Weiher, Tyndale, and Green, have testified as to the Nowak pavement.

Mr. Weiher (page 54, Compl't's Record) is a builder, and lives at E. 93d street. He testifies (ans. 5 to 7, p. 55) that he saw that pavement after it was laid; that it was in one piece.

That he saw it in 1873 and it appeared broken down and cracked in different directions and patched up in different places. Ans. 8–13.

907 The witness says, ans. 114, p. 65, that he had, as requested, looked at that pavement again and found some cement scattered on top of it. He dusted off the cement and found the cracks under the dust or cement.

On page 68, ans. 118, Mr. Weiher describes the cracks in the pave-

ment running from the fence to the office as being long cracks, crooked.

Dr. Tyndale, p. 77, examined the Nowak pavement, and found it to be cracked in different directions, some from north to south and others from west to east. He saw nine cracks taking both directions. In ans. 5 he specifies them, and states that some of them running north and south form "islands." Ans. 85, p. 87. The cracks that run northerly and southerly are crooked.

Thomas S. Green, a policeman, Compl't's Record, p. 88, states that in 1869 his beat included the south side of 86th street, and in summer extended from 79th to 94th streets, from 3d to 4th avenues.

In ans. 5 Mr. Green describes the Nowak pavement which he saw in process of construction, having been sent to Gunther's by Sergeant Brooks after cement.

"Ans. 9. There were no divisions. It was perfectly smooth."

"Ans. 10. There were no marks or lines or joints in it."

"Ans. 11. He saw it after the fence was taken away, about ten days afterwards."

"Ans. 12, 13. It was a nice smooth sidewalk, but as the cold weather came on I noticed some cracks, and remarked to Policeman Coogan that I thought it would not stand the frost, for I saw it commencing to crack."

"Ans. 15. The larger cracks extended from the sidewalk towards the office; there are smaller ones branching off."

908 *The Holman Sidewalk.*

The next instance of alleged prior use set up by defendant is a sidewalk at Holman's house, Bergenwood avenue, New Jersey.

Def't's witness Bandman testifies (Def't's Record, p. 45, ans. 5, 6) "that a sidewalk was laid on Bergenwood avenue, New Jersey, in 1869; so far as I can recollect, it was laid first in one continuous piece by my partner (Mr. Holman), and then I laid it over in the fall in sections. I have no memoranda with me as to the time. I can find out by my books."

"7 Q. Will you please ascertain the time from your books, and report the result of your investigation at the next meeting of this examination?"

"A. Yes, sir; certainly."

"13 Q. Did you ascertain the time when you laid that pavement in front of Mr. Holman's house in Bergenwood avenue, town of Union, New Jersey?"

"A. I did ascertain. The first time that pavement was laid I cannot find in the books, because there was no charge made for it to Mr. Holman. The second time was on the 25th or 26th of June, 1870."

"14 Q. From what do you know that it was on the 25th or 26th of June, 1870?"

"A. Because I took the workman from there to Baltasar's house to lay a cellar floor, and finished that floor on the 1st of July, as charged in my books."

Defendant's witness Bandman is asked about an affidavit, Def't's Exhibit 10, which he made in the suit of Schillinger *vs.* The Portland Stone Co., and he explains on p. 52, 53, Def't's Record, ans. 53: "I will explain the whole matter about this affidavit. On the morning this affidavit was made I received a draft of it from Washington, with the request to send it back signed by a justice of the peace or a notary, the same day, jointly with an affidavit of Mr. Seyfang. I went before the justice of the peace, John Reinhardt, and signed that, without consulting my books or any memorandum, in the city where my business was. After coming to the city and looking over our books I found I had made several mistakes, and I wrote to Mr. Clephane that such was the fact. There were no blocks in said pavement at that time, not being marked as blocks."

"54 Q. What do you mean by 'not being marked as blocks,' in your last answer?"

909. "A. The sidewalk, in 1869, was laid in one continuous piece, without showing any divisions on the surface."

"55 Q. Were you present when it was being laid? I mean the sidewalk on Bergenwood avenue."

"A. Yes, sir."

"56 Q. Did you inspect it after it was completed?"

"A. Yes, sir."

"57 Q. And you positively swear that you could detect no divisions on the surface of such pavement after it was completed?"

"A. To the best of my recollection now I can swear to it."

In ans. 71, page 55, Mr. Bandman gives the substance of his letter of correction to Mr. Clephane, and he states that he wrote it the day after the affidavit was sent, and that Clephane was president of a pavement company in Washington in which the witness was interested; that Clephane sent him a draft of the affidavit, ans. 72 to 73.

What Bandman really did to the old Holman pavement in June 25th to 30th, 1870, appears from his answers 18, 19, p. 47; ans. 82, p. 57; ans. 97 to 99, p. 61, where he states that he only put on the continuous pavement a new top surface, an inch or so thick, and divided it into squares.

It appears, therefore, from Bandmann's testimony that the Holman sidewalk was repaired in this manner in the latter part of June—25th to 30th—1870.

After defendant's witness, Bandmann, had thus testified that the Holman sidewalk was laid in October, 1869, in one continuous piece, the defendant called Gottlieb Seyfang, Def't's Record, p. 63, who tried to swear that that sidewalk was laid the second time in October, 1869.

In answer 10, p. 64, he states how it was laid in October, 1869, and his description shows it was laid in the old mode, joists being laid down to work up to and the space filled in with fresh cement next to the part first laid. He says: "We put nothing in the joints between the flags."

Ans. 25, p. 66. "Bandmann gave the orders the second time."

Ans. 40, 41. "Drehmann was the mason who laid the sidewalk."

Bandmann, ans. 78 to 81, p. 57, Def't's Record, does not recollect who laid the sidewalk at Holman's house in October, 1869, but thinks Seyfang worked at it, and that Heesch worked for Bandman in 1869.

Defendant's witness, Hopke, Def't's Record, p. 222, ans. 84 to 90, says the Holman pavement was laid in one piece; that he worked for Bandmann & Co. in 1869, up to October, ans. 52, p. 217; and that Drehmann was their foreman, ans. 53.

910 The complainant called Mr. Heesch to testify as to the sidewalks laid for Bandmann & Holman, Compl't's Record, p. 96. He worked for them from August, 1869, to September or October, 1870, ans. 9. Drehmann, Heesch, Seifert (meaning, probably, Seyfang), and a boy named Bruggeman laid Holman's sidewalk in October, 1869, ans. 12.

It was all laid in one piece, ans. 17 to 21.

Complainant sent to Germany and took the testimony of Mr. Drehmann there by commission, Compl't's Record, p. 148.

Mr. Drehmann testifies, p. 154, ans. 3 and 4, that he was in the U. S. and worked for Bandmann & Holmann from July, 1869, to October, 1870.

Ans. 5, 6. "That he laid down a cement pavement in front of Holmann's house in October, 1869. The work was done by himself, Heesch, and another laborer, whose name he does not recollect. It was made of one continuous piece."

Ans. 16, 17. "The first cement sidewalk laid in blocks he ever saw was at Castle Garden, in the latter part of 1869 or the 1st of 1870," and, ans. 34, "that he knew of no other person laying such pavement before Mr. Schillinger in that way."

The Yerks Pavement.

The next instance of alleged prior use is the Yerks pavement in the Willoughby garden, to prove which the defense produced Mr. Yerks, Def't's Record, p. 134, who swears that he laid a garden walk of cement in blocks in the grounds of the Willoughby mansion, Brooklyn, between 1849 and 1852, and that it reached from the house to the water-closet, ans. 11 to 14, pages 135, 136.

That he used strips of wood between the joints of cement, ans. 15; but in answers 23 to 30 he says he used only five or six strips in the whole pavement, because he had not wood enough to put between all, and that there was nothing between the blocks where no wood was interposed.

In ans. 31 to 34 he says he saw the pavement about two or three years afterwards and repaired it.

911 Ans. 41 to 47, he says also that there was another similar cement block walk in the same grounds laid by one Duval that fall or the next spring.

In ans. 35, p. 139; ans. 117, p. 149; ans. 164, p. 155; ans. 199, p. 161, he says he did this work for Charles A. Denike.

In ans. 136, p. 151, he says that where he did not leave strips of wood he laid the fresh cement directly against the part of the walk

where the last strip was taken from—that is to say, directly against the edge of the cement already laid, and, ans. 170, p. 156; ans. 270, p. 172, he repaired the walk in the same manner, so that the fresh cement came in contact with the edges of the old parts of the walk, and, ans. 178, p. 157, he says he don't recollect whether he repaired the walk so that the vacant space formed one continuous piece or whether he used "wood or a piece of tin, or something to that effect."

The witness, Yerks, seems to have drawn on his imagination in his history of the Willoughby sidewalk, for he is contradicted by Mr. Willoughby himself, Mr. Judge Pierrepont, Mr. Willoughby's son-in-law, and by Mr. Benjamin Baldwin.

Mr. Baldwin, Compl't's Record, p. 121, ans. 3, 5, says he knew the Willoughby mansion; it was burnt one 5th of July, twenty-five or thirty years ago.

Ans. 7 to 11. He knew the premises and never knew any cement walk there.

Ans. 13. Edwards Pierrepont lived in the house at the time it was burned down.

Samuel A. Willoughby, p. 133, the proprietor of the Willoughby mansion, referred to by Yerks, says, ans. 4, that all the walks in the rear of the house were gravel.

Ans. 9. There were two circular walks from the front gate to the two front doors flagged with silver stone; all the other walks on his premises were of gravel.

Ans. X 15 to 19. He thinks it is not possible any cement walk could have been laid to the privy without his knowledge, and says that there was never any cement walks put down on any part of his premises.

P. 139. The house was burned down July 5th, 1852.

912 Mr. Pierrepont's testimony is found on p. 141 of Compl't's Record.

Ans. 3. He knew the Willoughby premises as early as 1835. He lived on the premises and had sole charge of them between the last part of 1849 and the time of the burning of the house in July, 1852. He resided on the premises during the whole of that period and knew about the walks and premises, and had entire charge of the same.

Ans. 4. His best recollection is that there was no cement walk laid there during that time, and nothing was laid or done upon the premises during that time—1849 to 1852—which witness did not personally see.

Ans. 5. Has no recollection of any person of the name of Yerks laying or repairing any walk in the premises during that time.

Ans. 15, 16. Never knew or heard of Charles A. Denike. Thomas S. Denike did all the work for me.

Ans. X 19. I have no recollection of any cement walk upon the place.

Ans. X 20. I cannot recall the slightest memory of ever having seen a cement walk upon the place.

It appears, therefore, from the testimony—

1st. That the Nowak pavement was not made in separate blocks in the manner claimed in complainant's patent, but in one piece, according to the old method, and that the cracks (called joints by the defense) were the result of shrinkage and frost, and that said cracks extended not only in the direction in which the joists were laid, but also transversely.

2d. That the Holman sidewalk was laid in one continuous piece in October, 1869, and was, according to Bandmann, repaired in 1870, between the 25th and 30th of June, when a top surface about an inch or an inch and a half thick was laid over it in the manner Bandmann describes.

3d. That the supposed Yerks pavement, alleged by Yerks to have been laid by him in the Willoughby premises between 1849 and 1852, never had any existence.

The hollowness of the pretense that the defendant himself made this invention in laying his office pavement is the more ap-
913 parent when we consider that that was the first cement pavement Nowak laid (Nowak ans. 3, 4, 5, Def't's Record, p. 11; Gunther ans. 60, p. 95); that it was begun and finished in Gunther's absence (Nowak ans. 67 to 72, p. 21); that it was laid according to the old method, a joist being used to level up to, and the plastic cement thrown in so as to fill the whole space between the part already laid and the side of the joist, and that it was one continuous piece when finished, as Nowak and Green and Dreyer state. It was also the first pavement of cement Gunther ever made, Gunther's ans. 60, p. 95.

The second cement pavement laid by the defendant was at Dunn's factory in 1870 (Gunther ans. 70, 71, Def't's Record, p. 96). This was also of one continuous piece (Green ans. 43 to 47, Compl't's Record, p. 93; Weiher ans. 15 to 22, p. 55).

The third was at the Catholic Protectory, Westchester (Gunther's ans. 87 to 89, Def't's Record, p. 98), and he says, ans. 89, that he don't recollect that he laid any other in 1870 besides that at Dunn's and that at the protectory. The latter was of one continuous piece also. Nowak ans. 109 to 112, Def't's Record, p. 27.

The defendant Gunther, more than a year after complainant's patent was issued, obtained a patent (Def't's Ex. 13) on the 24th October, 1871, for an improvement on Mr. Schillinger's invention, consisting of artificial stones separated by a filling of gum or material capable of being hardened and remelted. If he had considered himself to be the inventor of Mr. Schillinger's pavement he would have claimed the invention and asked an interference. He did not make any such claim, but took a subsidiary and later patent for an improvement which rests upon the basis of Mr. Schillinger's antecedent invention.

The same remark applies to the Heesch & Hopke patent of February, 1872 (Heesch ans. 3 to 6, Compl't's Record, p. 96; ans. 32, p. 99; ans. 87 to 94, p. 103), of which Heesch says that he and Hopke wanted to use metal instead of tar paper. They made a piece of

brass with a lip on it to come over the edge of the blocks, called a corner protecter, and got a patent for it.

914 Mr. Drehman testifies, Compl't's Record, p. 157, ans. 34, that he always understood that Mr. Schillinger was the inventor of cement pavement laid in blocks, and that he knew of no other person laying them before him in that way.

Mr. Schillinger obtained his original patent July 19th, 1870, and the specification thereof was signed by him June 15th, 1870, as appears by the certified copy thereof, put in evidence by defendant, Def't's Ex. No. 1 (page 12 of Def't's Record), which date is about half a month prior to the date fixed by Mr. Bandmann for the repairs of the Holman pavement. Bandmann's ans. 13, 14, p. 46 of Def't's Record, and ans. 90, p. 60. But Bandmann swears the divisions extended down only from an inch to an inch and a half, and that, to his best knowledge, under most of the blocks is a stratum of cement and sand, ans. 97, 98, 99, Def't's Record, p. 61; also 82, p. 57, and in ans. 18, 19, p. 47, he swears they took up the upper surface of the cement pavement of about an inch and relaid it again to the same thickness.

If any of the divisions did go through to the natural soil it was evidently an accident, for there was evidently no antecedent intention to lay anything but a new top surface upon the old cement pavement; the new top surface was laid directly upon and incorporated with the old and continuous pavement, such top surface being about an inch to an inch and a half in thickness, and laid off in squares by laths which were, after the top had set, lifted out, tearing the edges so that they had to be "finished with a little new cement." That top surface is a different thing from complainant's invention, because it is only a divided top coating or dressing laid upon a continuous pavement, and it would be just as well to have marked off the new surface into divisions as to have cut through it to the old cement, since in either case the foundation cement pavement would still be one continuous piece.

915 United States Circuit Court, Southern District of New York.
In Equity.

JOHN J. SHILLINGER *vs.* HERMANN A. GUNTHER.

Please take notice that, under the order entered in the above cause on or about the 14th day of January, 1879, I shall, at my office, No. 41 Park Row, New York city, on the 3d day of March, 1879, at 10 o'clock a. m., before John A. Shields, Esq., examiner, proceed to take the testimony of John J. Schillinger and other witnesses. The examination will continue from day to day until completed. You are invited to attend and cross-examine.

Yours, &c., J. VAN SANTVOORD,
Compl't's Solicitor.

New York, February 28th, 1879.

To A. V. Briesen, Esq., def't's solicitor.

Service of notice, of which the above is a copy, is hereby admitted this 28th day of February, 1879.

A. V. BRIESEN,
Def't's Solicitor.

916 United States Circuit Court, Southern District of New York.
In Equity.

JOHN J. SCHILLINGER *vs.* HERMANN A. GUNTHER.

Testimony taken on the part of complainant under the order entered herein January 14, 1879, before John A. Shields, Esq., examiner.

NEW YORK, *March 3d*, 1879.

Present: J. Van Santvoord, Esq., and Edward Fitch, Esq., of counsel for complainant, and A. V. Briesen, Esq., of counsel for defendant.

JOHN J. SCHILLINGER, the complainant, called and duly sworn, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. John J. Schillinger; I am 48 years of age; I reside at 420 East 92d street, New York city, and I am a manufacturer of artificial stone.

Q. 2. Are you the complainant in this suit?

A. Yes, sir.

917 Q. 3. And are you the patentee named in letters patent No. 105,599, dated July 19, 1870, and reissue letters patent No. 4364, dated May 2, 1871?

A. Yes, sir.

Q. 4. State whether you made any experiments prior to the taking of the reissue of your letters patent and whether or no your application for a reissue was the result of such experiments.

Obj. to as leading, and notice is given that at the hearing a motion will be made to strike out all leading questions to which objection is raised and the answers thereto.

A. I did make experiments and the reissue was the result of such experiments.

Q. 5. State generally what experiments you made.

A. In the summer of 1870 and in the fall of the same year I laid a concrete floor for Jacob Ruppert. This was a floor in the second story of his brewery. That floor was laid in one continuous piece, but after the floor was laid I observed that where the joists or strips of wood had been laid some opening joints appeared. This was not in all places, but in some of them. In the same year I have laid a specimen of concrete in front of the office of the engineers in the Vanderbilt depot in 42d street, which has been cracked to pieces. After I had observed this I have made a piece in my shop with the same cement as was used in the Vanderbilt depot, which has shown afterwards an opening where one block has been laid against the other.

Q. 6. Referring to the piece laid in front of the engineer's office at the Vanderbilt depot, state how and in what manner it cracked to pieces.

A. The piece was about six by twelve feet and a deep crack in fractions irregularly.

Q. 7. How was that piece of pavement laid?

A. It was laid in one continuous piece.

Q. 8. State whether you made other experiments prior to your application for a reissue patent.

The same objection and notice as to question 4.

A. I did from time to time.

Q. 9. From those experiments which you made as stated what conclusion, if any, did you arrive at in regard to the necessity of interposing anything between the sections while in the process of formation?

Obj. to as immaterial, as it appears that the experiments were made after the date of the original patent and anything flowing therefrom not complainant's invention embodied in his original patent.

A. I come to the conclusion that cement would shrink in setting.

Q. 10. With what result?

A. By my own experiments.

Q. 11. With what result in respect to the formation of joints between the sections?

919 The same objection as to Q. 9.

A. The question is not clear to me.

Q. 12. State whether or no, as the result of the shrinkage of the cement, you concluded that there would be an open joint between the sections.

Obj. to on the same grounds as questions 4 and 9, and also as not calling for the actual result, but merely for a conclusion or opinion, which is immaterial.

A. This question is not clear to me; I can't understand it.

Q. 13. In your answer to question 9 you say, "I came to the conclusion that cement would shrink in setting." State whether there would be an opening in consequence of the shrinking of the cement in setting; and, if so, at what point or place in the pavement.

Obj. to on the same grounds as questions 4 and 9.

A. If cement shrinks there will be an opening somewhere, and the opening generally appears where a joist has been laid—if the cement does shrink—but good cement won't shrink.

Q. 14. What was the character and quality of the cement which you used in the experiments which you have mentioned?

A. It was an inferior cement, which fact I did not know when I made the experiments.

920 Q. 15. Did you act upon the results of those experiments; and, if so, what did you do?

A. I made an application for a reissue.

Counsel for compl't, Mr. Fitch, being called off, the further examination of witness, at his and Mr. Van Santvoord's request, adjourned to Tuesday, March 4, at 10 o'clock a. m.

NEW YORK, *March 4th*, 1879—10 o'clock a. m.

Met pursuant to adjournment.

Present: Counsel as before.

Examination of JOHN J. SCHILLINGER resumed by Mr. FITCH:

Q. 16. In your last answer you say that you made application for a reissue; through whom did you make that application?

A. Messrs. Van Santvoord & Hauff, patent solicitors.

Q. 17. Which one of the firm did you consult with and give instructions to about the reissue?

Obj. to as immaterial and as not within the issue.

A. Mr. Hauff.

Q. 18. At what time had you information that your patent was being infringed?

The same objection.

921 A. Yes, sir.

Q. 19. At the time you made your application for the reissue did you or not understand that the new matter inserted in the reissue asked for was within your invention?

Obj. to as leading. The same notice is given as to question 4.

A. I consulted with Mr. Hauff about it, and I did not consider that was any new matter. I considered it as my invention, or at least as a part of my inventton. The principal part of my invention was to form a block pavement or a sectional pavement on the ground, on the surface—I mean to say where the sectional blocks manufactured on the spot does remain, with the only difference that the old mode of laying sectional pavements was to make them in moulds and lay them down after they became hard, like a brick pavement, and it was also so understood by Mr. Hauff, and the application was made in good faith by me.

So much of the answer as describes the alleged invention is objected to by counsel for def't on the ground that the patent is the only evidence on that point.

Q. 20. Did you afterwards and on or about February 27, 1875, make a disclaimer of a portion of the description in your reissued patent?

A. I did.

Q. 21. How came you to make this disclaimer?

922 A. This disclaimer was proposed to me by my counsel, and I consented to it, as I found by experiment that it was impracticable to construct a sectional pavement without interposing something where a joint ought to be formed.

Q. 22. About how long before the disclaimer was filed was it that your counsel proposed to you the disclaimer?

A. I don't think it was over three days. I think they made the application for it immediately after they had my consent to.

Q. 23. Before your counsel proposed to you the disclaimer, what knowledge or information, if any, had you about the right to make a disclaimer?

Obj. to as incompetent.

A. I did not know that there was anything wrong in my reissue, and I did not know anything about patent law, and I never heard the word disclaimer before it was suggested to me by my counsel. I could not understand at first what they meant by disclaimer. After an explanation of my counsel what it meant I consented to it, as I was satisfied by practical experience that it wasn't possible to form a salable or such pavement which would be accepted by any engineer without interposing something—I mean to say, instead of possible, impracticable.

Q. 24. When or at what time did you become satisfied by practicable experience, as stated in your last answer?

923 A. In 1874 I contracted a pavement with the Government to be laid on the Capitol ground, in Washington, D. C. The contract was awarded to me by Mr. Olmstead, and the work was done under the supervision of Mr. Redford. Mr. Olmstead wanted me to lay in the fall of 1874 a specimen under the same contract. They wanted me to make as close and neat joint on that pavement as possible. I laid a specimen of about 2,000 or 3,000 sq. feet where each alternative block was left out, and then afterwards filled in of different color, and when these blocks were so formed and smoothed off on the top I washed away the spillings which run over from the new to the old or first-formed block with a sponge; after completed the joints or where two blocks joining each other did look, or made an appearance like two pieces of wood of different color has been glued together the way cabinet-makers does, but this pavement I had to take up again. It was not accepted by the engineer, and I myself was satisfied that I had to take it up, on the ground that the pavement was badly cracked, and when the joints had opened or cracked the line of such crack was crooked and irregular, and when I broke up the pavement I found that some of the blocks only could be taken up without breaking the same, and that nine-tenths of the pavement had made adhesions on the lines and broke irregular, and a longitudinal crack had crossed on section of blocks across the joints all the way through the length of the whole pavement.

Q. 25. About what time, with reference to the filing of the disclaimer, did you take up that pavement?

924 A. I did not take up the pavement in the fall. I let it lay until I could commence the new pavement next year, but in about the month of January, 1875, I was certain by inspecting the pavement that it was imperfect, and then I made up my mind never to lay any pavement again without interposing something.

Counsel for def't objects to the answer as not at all responsive to the question and as volunteered, and gives notice that he will move to have it struck out of the record on that ground.

Q. 26. State, if you can, the date when you took up that pavement.

A. It was in the commencement in the season of 1875, in April.

Cross-examined by A. V. BRIESEN, Esq.:

X Q. 27. How long have you been engaged in cement works of any kind?

A. Since 1869.

X Q. 28. What part of 1869?

A. I believe it was in December.

X Q. 29. Before December, 1869, you never had anything to do with cement, did you?

A. Yes, sir.

X Q. 30. When was that?

A. Experiments in making artificial building stone.

925 X Q. 31. Now, please tell the court when first you had anything to do with cement and what you did previous to December, 1869.

A. I made blocks of American cement. I believe it was in the year 1868.

X Q. 32. What kind of blocks were they?

A. I made blocks the size of a brick to the size of about 2 feet by 1 foot.

X Q. 33. Were they used; if so, for what purpose?

A. No, sir.

X Q. 34. When first did you lay a cement floor or pavement of any kind, and where and for whom?

A. I contracted to build an ice-house for Nicholas Seitz, in Williamsburgh, in fall of 1869. There I laid the first floor of Portland cement. I believe it was laid in December, 1869, but I am not positive whether it was December, but I am positive that it was between December, 1869, and the 1st of March, 1870.

X Q. 35. What was your next job for laying cement pavement or floor, and where and when was it laid, and for whom?

A. I believe the next job was for Christian Schaefer, in 57th street, between 10th & 11th avenue. It was in the same winter or in the spring of 1870. It was a cement floor for an ice-house.

X Q. 36. What was your next job for laying cement pavement or floor, and where and when was it laid, and for whom?

A. I could not recollect distinctly which was next.

X Q. 37. How large, about, was the cement floor of Seitz's brewery, and how was it laid?

926 A. I believe the building was 50 by 50; the three floors were laid each in one continuous piece.

X Q. 38. Please describe how you went to work to lay these floors each in one continuous piece.

A. At the starting point, from the end where we began to lay the floor, we laid a joist of the thickness of the concrete floor to be laid

parallel with that side we started from; about 4 feet from the starting point, across the whole length of the room. After this portion was completed we removed the joist backward about the same distance; before filling in new stuff we crushed down with our heels edge of the piece laid first; so we went on until the floor was done.

X Q. 39. Was any open joint formed in those floors at the place where the joist had been placed?

A. I have not seen any.

X Q. 40. Were the floors in Shaefer's brewery laid in the same way?

A. Yes, sir.

X Q. 41. Of Portland cement?

A. Yes, sir.

X Q. 42. Is Portland cement the best cement?

A. It is the best, to my knowledge.

X Q. 43. Did you use pure cement in those floors, or concrete—I mean cement mixed with gravel, etc.?

A. We mixed cement and sand and gravel.

X Q. 44. Look at the paper now shown you and state whether the same was signed by you in the presence of a notary public.

A. It was.

927 The paper shown the witness is the affidavit of the complainant, sworn to Nov. 22, 1878, before Charles F. Boettcher, notary public, and filed in this cause Dec. 20, 1878, and is offered in evidence by counsel for def't and marked "Exhibit Affidavit Schillinger."

X Q. 45. Does the Exh. Affidavit Schillinger state the truth in all respects, to the best of your knowledge and belief?

A. The affidavit in evidence will show for itself. I believe it is.

X Q. 46. Who drew it?

A. My counsel, Mr. Fitch.

X Q. 47. Under your instructions?

A. I gave Mr. Fitch the points to it.

X Q. 48. When did you first find out that cement would shrink?

Obj. to on the ground that it assumes a fact which the witness has already testified does not exist, namely, that cement will shrink.

Counsel for def't protests against the endeavor to prompt the witness under cover of an objection, and, moreover, as the objection is not in harmony with the testimony of this witness in answer to questions 9, 10, and 13 of his direct testimony.

A. During the winter of 1869 I bought a brand of cement
928 which comes from the southern part of Germany, from Dieckerhoffer Brothers, at a high rate of cost. As the principal manufacturing of cement exists in England, I gave orders to get cement of different factories from England. Besides, I have sent an order to Mr. Lottery, in Mayence, Germany, for a lot of cement which I thought would be, before I tried it, the very best of all, for the reason he was awarded a prize medal to him at the exhibition of Paris, in 1866. This cement was used for the Vanderbilt speci-

men and for the Ruppert job, but I am not certain whether we did use only this cement for the whole job of Ruppert or whether part of that work was done with English cement. This lot of cement did shrink very much. By using afterwards different brands of English cement I found amongst them shrinkage.

Answer obj. to as not responsive.

X Q. 49. (Question repeated.)

A. In the summer and fall of 1870.

X Q. 50. After July, 1870, or before?

A. After.

X Q. 51. Did you, on the 6th day of April, 1869, obtain a patent for the manufacture of artificial stone of two different compositions, a coarser and a finer or a facing material when the latter consists of very fine sand—cement and pulverized metallic paint, with or without coloring matter, mixed with lime water and applied to the coarser mass?

A. I believe I did.

929 Question and answer obj. to by counsel for compl't as wholly immaterial and irrelevant.

X Q. 52. Did you before getting that last-mentioned patent make experiments with different kinds of cement, and did you find that the finer material will adhere to the coarser body of the block?

A. This was the experiment I referred to in the beginning of my cross-examination. These blocks were formed in a mould and fine and coarse material was rammed in together. The lower part of the mould is in such process of manufacturing stone always the facing part of the block.

Answer obj. to as not responsive.

X Q. 53. (Question repeated.)

A. Yes, sir; under the same process I done it.

X Q. 54. What do you use as coloring material in your cement pavements such as that laid in the Capitol at Washington?

A. The coloring material in our different pavement process is a secret of our business which I don't intend to explain to you for the benefit of the infringers.

Answer objected to as not responsive.

X Q. 55. Then I understand you to swear that the pavements laid by you in colored blocks cannot be laid from the description of your patent, but require further information which do deem a secret of your trade. Is that it?

930 A. No, sir; that wasn't it.

X Q. 56. Does the patent on which this suit is brought state all the ingredients that you use in laying pavements such as that at the Capitol in Washington?

A. I have not patented a chemical process. I have patented the construction of the pavement.

X Q. 57. (Question repeated.)

A. I believe it does, except the coloring material, which is only used for the top surface.

X Q. 58. When did you first find out that cement will not shrink?

A. I found that perfect good cement will not shrink to form a joint and was positive of it by the work on the Capitol, providing if the cement was a good quality.

X Q. 59. Was that cement of good quality?

A. Yes, sir.

X Q. 60. Do you mean to say that when the testimony on behalf of def't was taken in this action, during the year 1873, you had not already concluded that good cement will not shrink?

A. I was not satisfied of it until the work on the Capitol at Washington, when I came to the conclusion it was impracticable to lay a pavement without interposing something to form the joints while in the process of formation.

X Q. 61. In your Exh. Affidavit Schillinger you swear that your conclusions on this subject were confirmed by the testimony taken on part of def't to the effect that fresh cement placed against set cement will adhere. Is that part of your affidavit true or not?

931 A. I thought over it afterwards, but I wasn't sure whether it was so until I had an opportunity like the one I had on the Capitol ground.

Answer obj. to as not responsive.

X Q. 62. (Question repeated.)

Repetition of the question objected to on the ground that the answer is responsive and exhaustive.

A. I did not pay particular attention to that part of his affidavit, but as it was a fact the testimony of Bandman I put it in.

X Q. 63. (Question repeated.) Please answer yes or no.

Obj. to because the witness cannot be restricted to an answer, yes or no.

A. I was not sure then.

X Q. 64. Not sure that the affidavit was true or not?

A. When I said I was not sure then I meant at the time of the testimony of Bandman.

Answer obj. to as not responsive.

X Q. 65. When you signed that affidavit were you sure that it stated the truth in all repects, the whole truth and nothing but the truth?

A. I believe so.

X Q. 66. Do you still believe so?

932 A. I do.

X Q. 67. Were you present when Mr. Bandman was examined as witness in this cause?

A. I believe I was.

X Q. 68. Did you after he left the witness stand on the first day of his examination invite him to an interview with you at the office of Mr. Van Santvoord?

Obj. to on the ground that the question calls for irrelevant and immaterial testimony and is introduced only for the purpose of casting suspicion and attributing improper motives to the witness and to his counsel, Mr. Van Santvoord.

Counsel for def't replies that the question asks for a fact, and denies that it seeks to affect the character of the witness in any manner other than as the same is affected by his own acts, and counsel denies most positively that anything in the question does or is intended to affect Mr. Van Santvoord, whose name merely occurs in connection with the interview as testified to by the witness Bandman.

Counsel for the compl't objects further to the question upon the ground that all the facts relating to the subject to which the question refers are already in evidence and appear in the record in this case.

A. I don't believe so. I don't recollect the time, because Bandman and myself was not on good terms.

933 X Q. 69. Did you not have an interview with him at Mr. Van Santvoord's office?

Obj. to on the same ground.

A. I cannot refresh my memory now, and would not swear whether I had or had not.

X Q. 70. Please read from pages 53, 54 of the def't's printed record in this cause, from the testimony of Mr. Bandman, and state whether or not it refreshes your memory in regard to the matter last enquired of.

The record handed witness and he answers:

A. It does refresh my memory as to what Bandman said, but not to my recollection of any conversation I had with him. I believe it was about an affidavit of Reinhardt made.

Counsel for def't calls upon Mr. Van Santvoord, here present, to admit that an interview took place between this witness and Bandman as referred to by Bandman.

In answer to the request of def't's counsel Mr. Van Santvoord states that his recollection is that Mr. Bandman and Mr. Schillinger came to his office, and that the subject of conversation was an affidavit which Mr. Bandman had made before a Mr. Reinhardt and which had been referred to in Mr. Bandman's testimony.

X Q. 71. Did you not express it as your opinion to others, as early as 1873, that fresh cement when placed against set cement will not adhere?

934 A. I don't recollect whether I did or not.

X Q. 72. Did you at that time know the fact to be such as last enquired of?

A. I did know at that time that some cement will not adhere, but I was not satisfied or sure whether best cement would—that is to say, on a horizontal joint of a block pavement.

X Q. 73. Well, but on the vertical joint of a block pavement were

you or not satisfied at that time that adhesion will take place on all cements?

A. I was not.

X Q. 74. Will you swear that you had not already concluded that such was the fact as early as 1873?

A. I will.

Counsel for def't calls the attention of the court to the fact that the last answer of witness is an absolute contradiction of his affidavit, Exh. Affidavit Schillinger.

X Q. 75. In your affidavit you swear that you became satisfied from actual experiment and from observation that the matter added to your patent by the reissue was a mistake. Do you now mean to swear that the work done by you at the Capitol in Washington, in the latter part of 1874, is the only experiment and the only observation made by you in that matter up to that time?

A. No; I have made some other experiments. I made a block of about six inches square; half of this block, 3 by 6, was a different color from the other half, and this was made, to the best of my
935 recollection, in the spring or in the winter of 1873 to 1874. It was formed in a mould of 3 inches thick, and half of it was filled in first in one color and the other half, after one block had been formed, in another color. This block, after it had set, I brought to Mr. Van Santvoord's office, and I recollect distinctly that this block was laying out in front of that window till the final hearing, and I do recollect now that Mr. Fitch used it in the argument on the final hearing.

X Q. 76. Was that block in one piece or was it not at the time that it was used by Mr. Fitch at the argument?

A. It was in one piece.

Counsel for def't requests counsel for compl't to try to have that block found, so that it can be identified by this witness.

X Q. 77. What did you make that block for?

A. For an experiment, whether one block would adhere to the other or not.

X Q. 78. How long before making the second half of that block did you make the first one?

A. After the first had sufficiently set to form an edge.

X Q. 79. By the words to form an edge I presume you mean that it had become hard enough to prevent it flowing down?

A. I mean the same as if I do manufacture a sidewalk on the street.

X Q. 80. Was that the first experiment of that kind that you made?

936 A. I do experiment almost all the time and I do not now recollect whether it was or not.

X Q. 81. Look at the circular now shown you, marked Exh. Schillinger Circular, and state whether you caused the same to be printed and distributed.

A. I believe I did.

X Q. 82. Why didn't you print the disclaimer onto it?

A. I believe I printed a correct copy of the judgment of Judge Shipman with the claims of my patent sustained by the decision of the court. I didn't know it was necessary to do so.

X Q. 83. Do you mean to say that you did not disclaim any part of the claims printed on that circular?

A. Yes, sir.

X Q. 84. Do you mean to say that your disclaimer does not disclaim anything referred to in these two claims?

A. I do.

X Q. 85. In your disclaimer you state that the claim of your patent is too broad, including that which you are not the inventor. Is that statement in the disclaimer true or not?

A. I made application under the advice of my counsel for a disclaimer and I consented to it only because I was satisfied that no one could lay any satisfactory pavement in detached blocks without interposing something while in process of formation; and, furthermore, I say now and insist upon it, that I was the first inventor of laying a sectional concrete pavement laid in plastic mass on the ground; and, furthermore, I say now, and insist upon it, if the def't had proved
937 or could prove that such pavement had been laid before the application of my patent I will give it up; and, furthermore, I have stated on the investigation of the motion made by me for contempt of court against Herman A. Gunther—I have stated to the court that it was not my intention to mulct the def't of this case, but, furthermore, I have to state that I was the sufferer in this suit.

Answer obj. to by counsel for def't as not responsive.

X Q. 86. (Question repeated.) Please answer yes or no.

A. The disclaimer speaks for itself.

X Q. 87. (Question repeated.)

Obj. to by counsel for compl't, because if the question is intended to be a quotation of the language of the disclaimer it ought to contain the words "specification and" before the word claim, and therefore the question is calculated to mislead the witness, who in the disclaimer has specified in detail the part he refers to as the subject of disclaimer.

A. I didn't pay no attention to the disclaimer, only to that part where nothing is interposed in process of formation. This was the only part which I paid attention to when the disclaimer was proposed to me by my counsel. The details of the legal part by filing such a disclaimer I did not understand.

938 X Q. 88. I did not ask you whether you understood or understand the legal part of the disclaimer; I do ask you whether the claim of your reissued patent as obtained includes that of which you are not the first inventor.

A. I understand that I am the first inventor to the two claims.

X Q. 89. Then the reissued patent does not in the claims contain that of which you are the first inventor. Is that it?

Compl't's counsel objects to the question because it is already answered.

A. This question is not clear to me, and I insist upon it that I was the first inventor, except you can prove that you have done it before I did.

X Q. 90. Please state whether the claims of your reissued patent as obtained include that of which you are not the first inventor, to the best of your knowledge and belief.

A. My claims, the first and second claim, to the best of my knowledge, does not include anything except my invention.

X Q. 91. Does the specification of your reissued patent, to the best of your knowledge and belief, contain anything of which you are not the first inventor?

A. They contain, I believe, some mistakes which are not made by me.

X Q. 92. By whom are they made?

A. By Mr. Hauff.

939 X Q. 93. Did he not make them according to your instructions?

A. I thought so then, when they were made.

X Q. 94. Do you still think so?

A. No.

X Q. 95. Why?

A. Because I think there were some mistakes.

X Q. 96. Do you think they were your mistakes or Mr. Hauff's?

A. I think they were mistakes of both.

X Q. 97. Did you tell Mr. Hauff when you applied for your reissue that you had found out cement would shrink, after having obtained your original patent?

A. I guess I did.

X Q. 98. Are you not pretty sure that you did?

A. I am not pretty sure.

X Q. 99. Did he not ask you why you had not told him so when he applied for your original patent?

A. We had several conversations about the reissue of the patent, and I do not recollect distinctly the words of the conversations.

X Q. 100. Did Mr. Hauff get out your original patent?

A. He did.

X Q. 101. You say that when you applied for your reissue somebody was already infringing on your patent. Who was it, and how did he infringe?

A. It was Bandman and Holman and other parties; some of them used paper and some of them used tin strips which they with-

940 drew after the block was formed; some of them was cutting it with a trowel.

X Q. 102. Were you advised to take the reissue so as to cover these infringements?

A. I was.

X Q. 103. By whom?

Objected to as irrelevant and incompetent.

A. By Mr. Hauff, after we had several conversations.

X Q. 104. By anybody else?

A. I don't recollect.

X Q. 105. Were any of these people that infringed on your patent before the reissue was taken laying cement pavement on the ground without interposing anything between the joints during the process of formation?

A. No, sir; there has not been any before, neither after, up to this day, to lay the pavement on any sidewalk in this city or anywhere else, laid a sectional pavement where they have not interposed something.

X Q. 106. (Question repeated.)

A. I haven't seen a pavement with joints where nothing was interposed except such with cracks and which were laid with the intention to form a pavement of one continuous piece, except the one I have laid and the specimen I have made.

X Q. 107. Did you see the pavement laid by Mr. Gunther, in 1869, in front of his premises?

A. I have not seen it — 1869.

941 X Q. 108 When did you see it first?

A. I saw it during this litigation, and I might have seen it before without paying any particular attention to it; but I have seen a pavement which was laid by Herman A. Gunther in the fall of 1869 or in the fall of 1870, corner of 87th street and 3d avenue, which was laid in one continuous piece and taken up by him and relaid in 1871 or 1872; this was the first sectional pavement I have seen laid by Gunther; this was at Dennis' carriage factory, at the northwest corner.

X Q. 109. Did you or not call at Gunther's place in the summer of 1860 for some cement?

A. I did.

Adjourned to Wednesday, March 5th, 1879, at 11 o'clock a. m.

NEW YORK, *March 5th*, 1879—11 o'clock a. m.

Met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of JOHN J. SCHILLINGER resumed by A. V. BRIESEN, Esq.:

X Q. 110. What did you do with it?

I wish to correct the last answer. I think it was 1868 or 1869, in spring, and the matter is in the record in this case.

A. I do not recollect exactly what I did with it, but I believe I made some experiments with it.

X Q. 111. What were the experiments, if you know?

942 A. If I did make experiments with it I believe it was to try it against other cement; but I do not recollect distinctly, because I was experimenting at that time in making artificial stone.

X Q. 112. Will you swear that when you called on Mr. Gunther

for that cement you did not see in front of his premises the flagging laid by him and about which testimony has been taken in this case?

A. I will positively swear that in front of his office, to the best of my knowledge, neither before or afterwards, never any artificial flagging has been laid. It was a pavement laid in one continuous piece, exactly the same as the one he laid afterwards, northwest corner of 87th street and 3rd avenue, and has been cracked.

X Q. 113. Did you know when you saw it at that time that that pavement was in one continuous piece because nothing had been interposed in the joints at the time the pavement was made?

A. I did not know at that time anything about sections or joints of that pavement, and did not pay any attention to it any more as I did to any other pavement I have seen in the Central Park. My particular attention was only called to that pavement when Mr. Günther *in* trying very strong to stick it in after suit was brought against him into this case as a sectional pavement. Investigation has been made and proofs have been brought; testimony has been taken on the spot where the pavement was laid, by the court, and the record shows all about that pavement.

943 X Q. 114. When did you first know that that pavement laid by Mr. Gunther was not and could not be in blocks or sections because nothing had been interposed during the process of formation?

A. When I examined it first.

X Q. 115. When was that?

A. After he tried to stick it in as a sectional pavement.

X Q. 116. Did you read Mr. Gunther's answer to your bill of complaint, in which that pavement was referred to?

A. I guess I did.

X Q. 117. Did you then go to examine it?

A. I did.

X Q. 118. Was that before proofs were taken in this cause?

A. I could not state the time when I did examine it, but it was after the time the suit was brought.

X Q. 119. Did you examine it before the photographs were taken of it which have been offered as evidence in this suit?

A. I am sure I did examine it before my photographs of it were taken.

X Q. 120. Did you examine it with Mr. Tyndale before his testimony was taken in this suit?

A. I brought up Dr. Tyndale there and showed it to him before his testimony was taken.

X Q. 121. Had you not seen Mr. Gunther, before you called for the box of cement, to ask him the price of some flooring which you wanted to get done for the ice-house at Williamsburgh?

A. I could not swear whether I did or not, it is so long ago.

944 X Q. 122. How long have you been in New York, Mr. Schillinger?

A. Since 1852.

X Q. 123. Did you during that time not see any Russ pavement laid in Broadway, New York, on a cement foundation?

A. I have seen a pavement laid on Broadway which is a block-stone pavement of natural stone, and I believe that pavement was laid before I was in this country, but the present pavement is laid now of granite blocks, I have noticed; I have seen when they were doing it.

X Q. 124. Have you seen the cement foundation for the first Russ pavement?

A. I have not.

X Q. 125. Have you any information as to its character?

Compl't's counsel objects to the question as irrelevant to the issue on which this examination is based, and gives notice to def't's counsel that on the hearing thereof a motion will be made to strike it from the record.

A. Only by the reference brought by a patent in this suit.

X Q. 126. Do you mean to say that you have no other information than that given by the Russ patent as to the character of the cement foundation used on the old Russ pavement?

Compl't's counsel makes the same objection and gives the same notice as to the preceding question.

945 A. I had no other information.

X Q. 127. From whom did you buy the cement used by you for laying the floor for Jacob Ruppert?

A. I imported it from Mr. Lottery, of Mayence.

X Q. 128. Didn't you use any Portland cement on Ruppert's floor?

Obj. to because it is already answered.

A. Lottery is manufacturing Portland cement, and his cement was considered a good one, but it turned out a failure.

X Q. 129. In what respect did it turn out a failure?

Obj. to as immaterial.

A. In cracking, shrinking.

X Q. 130. How did it shrink, and where?

A. Wherever I laid it.

X Q. 131. How did it shrink, and where in Ruppert's floor; did it shrink vertically or horizontally; did it shrink along the walls or not?

A. It did shrink, as explained by me in my answer yesterday.

X Q. 132. (Question repeated.)

A. I have answered that question.

X Q. 133. You have not. Please answer it.

A. I have.

X Q. 134. Do you refuse to answer the question 131?

A. I do not refuse to answer any questions; but I con-
946 sider that's a nuisance to ask me a question again which I have already answered. It is only wasting time.

X Q. 135. Did the cement in Ruppert's floor shrink vertically?

A. What do you mean by vertically; the floor is only 3 inches thick. Where it did shrink it did shrink the whole thickness.

X Q. 136. Is that floor still there?

A. The building has been taken down and a new one erected on the place since. It was a brewery then, and now it is an ice-house.

X Q. 137. How thick was the floor when you laid it, and how thick was it after it had shrunk?

A. I believe it was 3 inches thick when I laid it. I did not measure it after it had shrunk.

X Q. 138. In laying that floor in Ruppert's brewery did you use joists across the whole length of the room?

A. I did.

X Q. 139. Did it afterwards have open joints across the whole length of the floor wherever a joist had been used, or did it have some opening joints at some places only where joists had been used? In other words, was it in separate flags or sections, or not?

A. It was separated partly only, not in all places. The instructions given to the hands doing such work in one continuous piece is always not to leave the edge of the spot which is laid and the joist been removed as it is, but to crush it down with their heels or with a hammer before the commencement of a new piece, and sometimes the workmen neglect this.

947 X Q. 140. What is the object of the instructions given to crush down the edge of the piece already formed?

A. To prevent cracking.

X Q. 141. Cracking where?

A. On the weakest spot if the cement shrinks.

X Q. 142. Was that also the object of crushing down the edges already formed in laying the Seitz floor about which you have testified?

A. I believe it was.

X Q. 143. Then do you mean to say that at the time the Seitz floor was laid you already knew that the cement would shrink and open at the places where the joists were used unless crushed down with the feet?

A. I do not mean that, but it is the practice of the business in mixing cement, gravel, and sand to spread on a floor, to make the same water-tight, that it should be mixed up and mingled together by the material which is used for the same to be a uniform concrete floor. If the edge should stand straight it can be always observed, the spilling over of the new plastic mass on that line, and it looks like a patch, but if it was made more irregular it does not show so much the new cement on the old, on the surface. Another reason is, to do this in practice, that sometimes where such a floor is laid in an upper story, where it is not laid on the natural soil, but on boards, it would break by shaking of the floor on its weakest spot, and the weakest spot would be that place where the joists had been laid.

948 X Q. 144. How was cement pavement laid in this country before you made the invention here in controversy, as far as you know?

Complainant's counsel objects for the same reason and gives the same notice as to question 125.

A. Cement pavement, in one continuous piece, was laid the same as I have described it on the ice-house of Seitz and on the ice-house of Christian Schaefer and on the brewery of Jacob Ruppert; and cement pavement, in sections, was laid as follows: It was always laid in tiles here and in Europe, which were manufactured in moulds and after they became hard to transport them. The tiles were laid down like a brick pavement or like encaustic tiles or like marble tiles.

X Q. 145. When cement pavement was laid before your invention was the edge of the block last formed always crushed down before the fresh material was placed against it?

The same obj. and the same notice.

A. I am sure that all skilled men have done it.

X Q. 146. Did you ever lay a cement pavement before you made the invention of laying it in blocks or sections?

A. I believe the Steinmetz pavement was laid by me in 42nd street before I had a patent. I have not laid any other sidewalk before the Steinmetz walk.

X Q. 147. When was the Steinmetz walk laid?

949 A. I believe it was laid a month or two before I obtained a patent.

X Q. 148. Was it laid in blocks or sections?

A. Yes, sir.

X Q. 149. What was put in the joints?

A. I have tried different methods on that pavement. The first pavement for Steinmetz, if I recollect right, was laid on the street sidewalk in front of his private residence, on which I have interposed wood strips and some experiments made with cutting with the trowel; and when I laid the yard, after I completed the walks on the street, I interposed tar paper between the joints, which I found the most practical of any application between the joints or of any interposition to form a joint.

X Q. 150. Did Mr. Schmidt suggest the use of the wooden strips to you?

A. Not as I recollect.

X Q. 151. Did you intend to lay the Steinmetz pavement in one piece, and did Mr. Schmidt suggest that it had better be laid in sections or pieces?

A. I contracted with Mr. Steinmetz to lay his sidewalk and his yard of artificial stone flagging.

X Q. 152. (Question repeated.)

A. I did never intend to lay it in one piece, and Mr. Schmidt never made any such suggestion.

X Q. 153. Have you that contract with Mr. Steinmetz yet, and will you produce it?

A. It was a verbal contract and not in writing; but, if you wish, you can call Mr. Steinmetz as a witness; I will find out for you his present residence and his full name.

950 X Q. 154. The piece of concrete you laid in front of the Vanderbilt depot, referred to in your answer to question 6, was one single piece, was it not?

A. It was one large flag; it was laid with the intention to show just about the size of one artificial stone flag, but it was very large. I believe we filled it all in at once, but I am not sure.

X Q. 155. You have testified that your counsel proposed the disclaimer to you. Who were they?

A. Messrs. Van Santvoord and Fitch.

X Q. 156. What reason did they give you when they proposed the disclaimer?

Obj. to by compl't's counsel for the same reason as to question 125, and the like notice given.

A. I believe it was about some mistake in the reissue. As far as I did understand the meaning was, and it was my impression that the disclaimer was made because the other party was trying to prove that a cement floor laid in one continuous piece was laid sectional, because joists had been used to form such a floor; that was the understanding on my part.

X Q. 157. Did you tell your counsel, before the disclaimer was filed, the result of your Washington experiment?

A. I did.

X Q. 158. What did you tell them about that at that time?

951 Counsel for compl't objects to this question for the same reason as to question 125 and gives the like notice; and further objects that the question calls for communication between counsel and client, which cannot be the subject of enquiry.

Counsel for the def't replies that the complainant has undertaken to prove that the disclaimer was filed by advice of counsel, and insists that he is justified in cross-examination to ascertain what that advice was based upon.

A. I told them that I was satisfied that it was impracticable to form a sectional pavement without interposing something, and that such pavement would be worthless. That was my experience in practice.

X Q. 159. Do you consider yourself still the first inventor of the part of the patent which you disclaim?

A. I consider myself the inventor of the sectional pavement laid in plastic mass on the ground.

X Q. 160. (Question repeated.)

Counsel for compl't objects to the question because the disclaimer speaks for itself.

A. I do believe to-day that no one ever tried to form a sectional pavement without interposing something; at least I have not seen it, and I do not claim what I have disclaimed.

X Q. 161. Then, as I understand you, you disclaim part of your patent only because that part was impracticable; is that it?

952 Counsel for compl't objects to the question because the disclaimer speaks for itself.

A. I understood it so.

Adjourned to Saturday, March 8, 1879, at 10 a. m.

NEW YORK, *March 8th*, 1879—10 o'clock a. m.

Met pursuant to adjournment.

Present: Counsel as before.

Redirect examination of JOHN J. SCHILLINGER by Mr. FITCH:

The witness states that in the end of his answer 23 he makes the following correction, namely: I mean to say, instead of wasn't possible, that it was impracticable.

R. D. Q. 162. Cross-question 122 is as follows: "How long have you been in New York, Mr. Schillinger?" and your answer is, "Since 1852." State of what country you are a native and what your age was when you came here, in 1852.

A. I am a native of Germany, of Baden, and was twenty-one years and six months old when I came to this country.

R. D. Q. 163. Do you consider yourself thoroughly familiar with the English language when spoken and written?

Obj. to as irrelevant.

953 A. I do not. I am not thoroughly familiar with the English language only in ordinary conversation—ordinary business language.

R. D. Q. 164. You have spoken in your answer to cross-question 75 of an experimental block which you stated that you made, to the best of your recollection, in the spring or in the winter of 1873 to 1874. State what spring you refer to.

Obj. to as already answered.

A. In my answer I did mean the spring of 1874, but since I called my attention that I had made two blocks and brought them to Mr. Van Santvoord, one with an interposition of tar paper and one without interposing something, the latter one was made in the winter of 1874 to 1875.

R. D. Q. 165. You have spoken in cross-examination of laying cement in one continuous piece in Ruppert's brewery and Seitz's and Schaefer's brewery or ice-houses. On what foundation was the cement in those cases laid?

A. The first floor was laid on natural soil, and the second and the third floor was laid on a wooden floor.

R. D. Q. 166. What is the effect upon the pavement on a wooden floor as respects cracking or durability?

Obj. to as immaterial.

A. Cement concrete dries out quicker on a wooden floor than on

the ground and always cracks more than on the ground, not
954 only for the reason of drying quicker, but for the reason of vibration.

R. Q. D. 167. Does the swelling or shrinking of the wood have any effect upon the pavement?

A. It has a good deal.

R. D. Q. 168. In your affidavit, Exh. Affidavit Schillinger, you state as follows: "That deponent was afterward satisfied from observation and actual experiment that this was a mistake, and that when blocks were laid in the manner above stated there would be adhesion between the blocks," etc. To what time did you refer or what time did you have in your mind when you used the words "was afterwards satisfied?"

A. I mean after the pavement on Capitol ground in Washington was laid. I meant at that time.

R. D. Q. 169. You state further in the said affidavit marked Exh. Affidavit Schillinger as follows: "And deponent further says that when the testimony on behalf of the defendant was taken in this action his later conclusion on that subject was confirmed by the introduction of testimony — the defendant to the effect that fresh cement when placed against set cement will adhere," etc. State to what time you understood that language to refer, especially where you refer to your later conclusion on that subject.

Obj. to, as the affidavit speaks for itself, and that testimony in explanation of the same is irrelevant.

955 A. The later conclusion I meant after the pavement in Washington was laid and not immediately after the testimony of Bandman, and so I did understand the affidavit. I was not confirmed, when that testimony was taken, that fresh cement would adhere, but the testimony of Bandman and others attracted my attention, and afterwards I met Mr. Bandman on Broadway and we talked about cement. He said he had a kind of cement which he called the Steittin Star cement; does not shrink. After Bandman and Holman went out of business the agent of the Steittin cement factory offered me the whole stock of cement which Bandman and Holman had on hand, and I bought it; that was in the summer or fall of 1874. This cement was used on the Capitol work in Washington, and then I was satisfied that the testimony of Bandman was correct.

All after the words "understand the affidavit" objected to by def't's counsel on the further ground that it is volunteered.

Witness desires to add the following: Where my affidavit says in this action "his later conclusion on that subject was confirmed by the introduction of testimony by the def't" that this part of the affidavit was not given by me to the counsel, but it was composed by them.

The same objections.

R. D. Q. 170. In answer to cross-question 47, which is as

956 follows, "Under your instructions?" you answer as follows: "I gave Mr. Fitch the points to it." Were those points in writing?

A. They were in writing.

R. D. Q. 171. Have you them here present as you delivered them to Mr. Fitch?

Obj. to as immaterial.

A. I have them here. Here they are. These are the originals.

Compl't's counsel offers them in evidence, and they are marked Compl't's Exhibit Manuscript Instructions, J. A. S., Ex'r.

The same objection to the exhibit.

R. D. Q. 172. After the affidavit, Exh. Affidavit Schillinger, was drawn, and before you signed it, was it read over to you?

A. It was.

R. D. Q. 173. Why did you not then make corrections in it?

The same obj. as to question 169.

A. I admitted to it when Mr. Fitch showed me the printed testimony of Mr. Bandman, but I did not understand it then as I do now. I meant then that the words "afterward I was confirmed" I understood that it meant the work on the Capitol.

R. D. Q. 174. What had you in your mind at the time when the words referred to were read over to you?

957 The same objection.

A. I had in my mind that the testimony of Bandman attracted my attention and that I was confirmed, after my experience in the winter of 1874 and 1875, that good cement would not shrink, and I consented to that part of the affidavit. Of course, I thought it was all right.

Recross-examined by counsel for defendant:

Recross-Q. 175. In whose handwriting is Complainant's Exh. Manuscript Instructions?

A. Mr. Weidenmann's. He is in my office.

Recross-Q. 176. Did he prepare the said exh.?

A. I dictated it to him and he wrote it, and I then corrected it again.

Recross-Q. 177. Did you correct it in writing?

A. In words, and he wrote it.

Recross-Q. 178. Then your knowledge of the English language is sufficient to prepare a document like Exhibit Compl't's Exh. Manuscript Instructions, is it not?

A. If my knowledge was sufficient to prepare such a document I would have done it myself.

Recross-Q. 179. Then your knowledge was sufficient to dictate and correct said exh., wasn't it?

A. Not in all respects; I have used partly my mother language.

Recross-Q. 180. Do you mean that you didn't prepare it in all respects or dictate it?

A. I do not mean that, but I mean that I was able to understand it after a long conversation, but not write it down myself. He had all the facts for me either in German or the English lan-
958 guage. He did not know the history of my invention, because we did not know each other the time the invention was made.

Recross-Q. 181. What do you understand by dictate?

A. The meaning or telling what I want to another person to write for me.

Recross-Q. 182. Did you dictate to Mr. Weidenmann in the German language, too?

A. Our conversation is mostly German, and I did dictate first the whole of the history of the invention in the German language.

Recross-Q. 183. Is that dictation a part of the Exh. Compl't's Exh. Manuscript Instructions?

A. He listened to me until I was ready, and then he put it down in English.

Recross-Q. 184. And that is what you call a dictation, is it?

A. I understand so.

Recross-Q. 185. What caused the preparation of Exh. Compl't's Exh. Manuscript Instructions?

A. At the request of my counsel.

Recross-Q. 186. When was that exh. prepared?

A. It was before Mr. Fitch drew the affidavit. I could not state the date. Perhaps Mr. Weidenmann could.

Recross-Q. 187. Was it more than five years before the affidavit was prepared?

A. I think it was about a week or two.

Recross-Q. 188. And that is the first time you met Mr. Weidenmann, is it?

A. No, sir.

959 Recross-Q. 189. Where, if at all, does it appear in Compl't's Exh. Manuscript Instructions that you found your reissued patent to be too broad and that a disclaimer should be filed?

Obj. to because the exh. will speak for itself.

A. If it is in, the manuscript will speak for itself.

Recross-Q. 189½. (Question repeated.) Please read over the exh. and answer the question.

A. I want somebody to read it for me.

Recross-Q. 190. Have you never read that exh. before?

A. I have read it together with Mr. Weidenmann.

Recross-Q. 191. Who read it?

A. Mr. Weidenmann.

Recross-Q. 192. Did you understand it?

A. I have, after going over and over again.

Recross-Q. 193. You refuse to answer to question 189 unless the exh. is read to you, do you?

A. I do not refuse to answer any question. If you give me time

enough I will try to read it and find what you want, which you already know.

Recross-Q. 194. The Exh. Manuscript Instructions is headed History of the invention. Do you mean to say that you don't know this history without reading over the exh.?

A. I know the history of my invention, but I do not know in what part of that paper the points are mentioned he refers to.

960 Recross-Q. 195. Are such points as are contained in my 189th question contained in the Exh. Manuscript?

A. The exh. speaks for itself, and I do not recollect whether they are or are not.

JOHN J. SCHILLINGER.

Sworn to before me this March 8th, 1879.

JOHN A. SHIELDS, *Examiner.*

Counsel for complainant offers in evidence the affidavits of Jacob Weidenmann, George H. Radford, and John Bogart and John J. Schillinger, filed in this suit on December 20th, 1878.

Defendant's counsel objects to said affidavits as incompetent.

Complainant rests.

961 COMPLAINANT'S EXHIBIT MANUSCRIPT INTRUCTIONS. J. A. S., Ex'r.

Improvement in Concrete Pavement.

History of the invention.

Before the year of 1870 all the concrete pavements were laid in one continuous mass. In the month of July, of 1869, the inventor visited the Central Park and noticed a concrete pavement laid on one of the prominent walks which was already broken into fragments.

I examined the same closely and asked myself the reason of these cracks and how it could be prevented. My opinion was that the cracks were caused by the change of temperature and the heaving of the subsoil by extreme frost, which created a contraction and expansion of the large mass of concrete. At this instance it struck me that if the pavement would be laid in sections of a reduced surface the damage would be less and could be reduced to nothing if the pavement would only cover 50 or 60 square feet.

I then followed this new idea and came to the conclusion that a pavement which is laid on the ground with plastic material could be spared from destruction by simply cutting the mass of concrete, while soft, into blocks or sections.

962 From this day I have given the matter my full attention.

In 1870 I made application for my invention, and laid the first sectional pavement on sidewalks and yard for Mr. Steinmetz, 42d St., between 1st and 2nd avenues, New York city, where I tried different modes to form sections. The second work was in 47th St.,

between 2d and 3d Ave's, for Mr. Marshall; and next for Nicolas Haas, 84th St. and 3d Ave.

Entire satisfactory results I found in my invention of laying concrete pavements in sections.

These pavements consist of Portland cement and sand, and they were, to my knowledge, the first pavement manufactured on the ground in sections.

In 1871 Hermann A. Gunther first infringed upon my patent by taking up a pavement which was laid by him in one continuous piece the previous year on 87th St. and 3d Ave. He relaid the same according to my invention, in sections.

Mr. H. A. Gunther, after being duly notified of his infringement upon my patent, interposed in the cuts of the sections bitumen and tin-foil, for which he applied and obtained a patent in 1871. In order to protect my patent I was advised by my lawyer to apply for a reissue and to secure the original invention for the laying of concrete pavements in sections.

The importance of this simple invention caused a large number of infringements, of which the most of them formed sections by interposing a lateral joist to form the edge and the joint between the blocks, and after the same were laid and still in plastic state
963 a cut was made between them to separate the same on the surface. Others interposed temporarily a line to separate the blocks on the surface.

Before my invention Portland cement was imported to this country chiefly for chemical purposes and exceeded, according to the custom-house statistics, not over 400 bbls. per annum. From the fall of 1870 to 1871 the consume of Portland cement for concrete pavements was over 6,000 bbls., and increased steadfastly to about 20,000 bbls. per annum. Besides this immense importation, a number of factories were started in this country for the purpose of manufacturing Portland cements, and I claim that this increase is solely based upon the use of cement for artificial pavements, which, before I made the invention to form such in sections, proved to be useless and impracticable, as shown by numerous attempts throughout the country.

Nowhere has any sectional pavement been formed on the ground previous to my invention. If so, I am willing to give up the whole of my patent.

In regard to my disclaimer, my advisers were under the impression that no sectional pavement of plastic material could be formed without mentioning something which forms the separation of the section; but I still believe that a partly separation or cutting into the blocks or sections are an infringement upon my patent and is not disclaimed by me, as without interposing something between the joints, either partly or wholly, no sectional pavement can be formed, and therefore I ask the court to grant me an additional decision to that effect.

964 CITY AND COUNTY OF NEW YORK, *ss:*

United States Circuit Court, Southern District of New York.

JOHN J. SCHILLINGER *vs.* HERMANN A. GUNTHER.

John J. Schillinger, of said city and county, being duly sworn, says: I am the patentee named in original letters patent No. 105,599, dated July 19th, 1870, and in reissued letters patent No. 4364, dated May 2d, 1871; and deponent further says that, to the best of deponent's knowledge and belief, all concrete pavements were laid in one continuous piece or mass prior to deponent's invention; that in the month of July, 1869, deponent visited the Central Park, in said city, and there saw such a concrete pavement laid on one of the principal walks in said park which had been broken up by the action of the elements into fragments of irregular shape; that deponent examined the same closely and when making such examination conceived the idea that by separating the cement or concrete into separate blocks or sections while the same was being laid and while it was in the process of setting or hardening a sectional concrete walk could be formed upon the ground which would be durable, which would not break up from the effects of heat and cold, the blocks or sec-
965 tions of which would heave separately and independently, and could be raised up or taken out when necessary without breaking or disturbing the adjacent blocks.

That deponent followed out the idea thus conceived by him to actual experiment, and found the results to verify the correctness of deponent's plan, conceived as aforesaid, and thereupon deponent made application through his solicitors for a patent therefor, believing that the invention thus made by him was new and useful and of great value in the art of making cement or concrete pavements; that immediately upon the granting of said patent and the publication of the same the said invention was well received by the public and was generally adopted by all persons engaged in the art, and walks formed in the manner described in deponent's patent were constructed in large quantities in the city of New York and in other cities of the United States and in Europe; that the publication of deponent's invention produced an active (actual) revolution in the art and created a much larger demand for concrete pavement than had ever existed before; that so large was the increased demand for concrete pavement that the importation into this country of Portland cement for such purposes steadily increased from about 400 barrels per annum prior to 1870 until it reached about 200,000 barrels per annum in the succeeding years; that, in addition to such increased importation, a number of factories were started in this country for the purpose of manufacturing Portland cement; and deponent claims and verily believes that the increased demand for this article was caused by deponent's said invention.

966 That the defendant, Hermann A. Gunther, recommenced infringing deponent's patent in 1871 by interposing bitumen and tin-foil between the sections while in the process of setting to accomplish the required separation, and subsequently interposed a

trowel or other metal instrument for the same purpose; that the said defendant was followed by various other infringers, who undertook by various devices to produce pavement in sections upon the ground in imitation of deponent's invention; that deponent was then advised by his solicitors to apply for a reissue of his said patent, and accordingly made an application for such reissue.

"That deponent made said application in good faith and verily believed that all the statements contained in the schedule referred to in the reissued letters patent and making part of the same were in all respects correct and true; that deponent then believed that the concrete in setting would shrink, and that after one section had been formed another section might be formed of the plastic material directly against and in contact with the one already formed, and that the blocks when completed would be detached; that deponent was afterwards satisfied, from observation and actual experiment, that this was a mistake, and that when blocks were laid in the manner above stated there would be adhesion between the blocks, and the joints would be irregular and imperfect, and especially that the line of union or adhesion between the blocks would be irregular at the surface, and that cracks or breaks occurring in one block
967 or section would run across the line of union between such block or section and those adjoining thereto into such adjoining blocks or sections, thus damaging or destroying the whole walk; that work thus made would be imperfect and defective and of little value, and that that mode of forming a pavement was impracticable unless followed by the introduction or interposition between the blocks of some tool or instrument to form the joints and render the separation uniform and regular.

"And deponent further says that when the testimony on behalf of the defendant was taken in this action his later conclusion on that subject was confirmed by the introduction of testimony by the defendant to the effect that fresh cement placed against set cement will adhere and contradicting the statement in deponent's claim as contained in his said reissued patent that, since the concrete in setting shrinks, the second block, when set, does not adhere to the first and proving that in a pavement laid in that way cracks occuring in the pavement went right through the whole length of the pavement and not in the lateral joints; that deponent thereupon filed his disclaimer because he was apprehensive that the claim of his patent might be construed to cover something which was impracticable and of no utility whatever; that at the time of the filing of said disclaimer deponent did not know and does not now know that pavement or walk was formed of blocks from plastic material without interposing anything between their joints while in the process of formation, or that sectional pavement had been formed
968 in the manner disclaimed in said disclaimer prior to deponent's invention."

And deponent further says that he did not understand his disclaimer to admit that pavement formed in the manner therein disclaimed had been invented or was in use prior to his invention, but he understood the language used in said disclaimer to be a simple

declaration that he renounced and disclaimed the portions of his said claim therein particularly specified as forming any part or portion of his invention.

That deponent has been, since he made the said invention, steadily engaged in constructing pavements in this city and in other cities of the United States according to deponent's said invention, and is well and fully informed in regard to the state of the art and the public demands for cement walks and the kind and character of walk required to meet that demand; that deponent verily believes that cement walks in separate sections or blocks cannot be formed without interposing anything between the joints which will be acceptable to the public or will be accepted or approved by any one skilled in the art, or where good workmanship is required; that such work could not be made to assume a finished appearance, and that it would be worth at least thirty-five per cent. less than work constructed after deponent's said reissued patent with the disclaimed portions omitted; that deponent has never known any cement pavement constructed in sections formed on the ground for actual use in out-door work without the interposition of something while the material was in a plastic state,
969 to form or complete the joints; and deponent further says that, if he is allowed the opportunity to do so, he expects to be able to verify the foregoing statements by abundant and competent testimony; that deponent has disposed of numerous licenses to use his said invention under his said patent No. 4192, and for the most part granted said rights in consideration of the payment of a bonus in money and of a royalty of one cent per square foot for all pavements laid under such licenses, and in cases where he granted such licenses without a bonus he reserved a royalty of two cents per square foot; that he has also sold some rights for a gross sum without adding the reservation of royalty; that he granted such licenses for a bonus in money and reserving such royalty of one cent per square foot for the following places in the year 1871, namely, State of New Jersey; county of Kings, N. Y.; District of Columbia, State of Louisiana, State of Georgia, county of Hartford, Conn.; State of Texas.

That deponent has in his possession written contracts with the parties taking licenses as aforesaid, which he is ready and hereby offers to produce to verify his statements aforesaid relating thereto.

JOHN J. SCHILLINGER.

Sworn to before me this 22d day of November, 1878.

CHAS. F. BOETTCHER,
Notary Public, Kings County.

(Certf. filed in N. Y. Co.)

To A. V. Briesen, Esq., def't's solicitor:

970 Please take notice that the within is a copy of an affidavit to be used in support of the pending motion before the court

in the cause in which it is entitled to refer back said cause to the master for further accounting, &c.

New York, Nov. 22, 1878.

J. VAN SANTVOORD,
Compl't's Solicitor.

Service of a copy of within affidavit is hereby admitted Nov. 22, 1878.

A. V. BRIESEN,
Def't's Solicitor.

971 CITY AND COUNTY OF NEW YORK, *ss:*

United States Circuit Court, Southern District of New York.

JOHN J. SCHILLINGER *vs.* HERMANN A. GUNTHER.

Gotthardt Litthauer, being duly sworn, deposes and says that on the 25th day of November, 1878, at No. 258 Broadway, in the city of New York, he served copies of the annexed affidavits on A. V. Briesen, Esq., the def't's solicitor herein, by handing the same to and leaving them with him personally; that he knew the person so served to be A. V. Briesen, the defendant's solicitor in the above-entitled action.

GOTTHARDT LITTHAUER.

Sworn to before me this 27th day of November, 1878.

CHAS. F. BOETTCHER,
Notary Public, Kings County.

(Certf. filed in N. Y. county.)

972 CITY AND COUNTY OF NEW YORK, *ss:*

United States Circuit Court, Southern District of New York.

JOHN J. SCHILLINGER *vs.* HERMANN A. GUNTHER.

George Kent Radford, of said city and county of New York, having his office at No. 71 Broadway, in said city, being duly sworn, says that he is by profession a civil engineer and architect, and has been actively engaged in his said profession for a period of thirty years last past, and during that period has had large experience in constructing sidewalks and park improvements, composed of every kind of material in use for such purpose, both for private and municipal parties and for the Government of the United States, and is familiar with the method of constructing artificial stone pavement employed by John J. Schillinger, and has employed the said John J. Schillinger to execute considerable work; that, in his judgment, it is and always has been impossible to construct a satisfactory artificial stone pavement without a free joint, and that he always specifies such pavement to be laid with free joints, and that he would not admit or accept of any other mode of laying such pavements, and, in his belief, pavements of artificial stone in sections formed

973 upon the ground were not in use before the date of Schillinger's patent, and, in his opinion, a free joint between the sections cannot be formed in regular lines without interposing something, while the material is in a plastic state, to form the joints.

GEORGE KENT RADFORD.

Sworn to before me this 25th day of November, 1878.

CHAS. F. BOETTCHER,
Notary Public, Kings County.

(Certf. filed in N. Y. county.)

974 CITY AND COUNTY OF NEW YORK, *ss:*

United States Circuit Court, Southern District of New York.

JOHN J. SCHILLINGER *vs.* HERMANN A. GUNTHER.

John Bogart, of said city and county, being duly sworn, says that he is by profession a civil engineer, and has been actively engaged in his said profession during the period of twenty-five years last past; that he has been engaged in the employment of the Government of the United States and of various municipal governments, and that for five years, from 1872 to 1877, he was superintending engineer of the park department of the city of New York; and deponent further says that an artificial stone pavement to be of value must be constructed in sections with free joints; that he does not know of any method, nor does he believe there is any method, of forming such free joints between sections laid in a plastic state on the ground without the interposition of something between the sections to assure such a joint; that if such walk is made in alternate sections, and the first series of sections be allowed to set or harden, and the spaces between them be filled with the material in a plastic state placed against the sections already formed without interposing anything, there will be more or less adhesion be-
975 tween the joints, and the joints will be imperfect and irregular; that deponent has experimented upon pavement formed in the manner last above described and found upon taken it up that the sections did not break in regular lines along the joints, but in irregular lines, portions of one section adhering to the other adjoining section.

Deponent further says that he was the engineer in charge of the work in the city-hall park done by the defendant, Hermann A. Gunther; that deponent required of said defendant and insisted upon a perfect separating of the sections, and in that case the formation of the joints was produced by the interposition of a metal tool while the material was in a plastic state; and deponent further says that work without the interposition of something to form free joints between the sections would not have been accepted and would have been of very little value; that deponent would not have such work in any case where deponent was employed.

And deponent further says that he has no knowledge or information of any pavement being laid of concrete in sections upon the

ground while the material was in a plastic state before the date of the Schillinger patent.

JOHN BOGART.

Sworn and subscribed before me this 25th day of November, 1878.

CHAS. F. BOETTCHER,
Notary Public, Kings County.

(Certf. filed in N. Y. county.)

976 CITY AND COUNTY OF NEW YORK, *ss:*

United States Circuit Court, Southern District of New York.

JOHN J. SCHILLINGER *vs.* HERMANN A. GUNTHER.

Gotthardt Litthauer, being duly sworn, says that on the 25th day of November, 1878, at No. 258 Broadway, in the city of New York, he served a copy of the annexed letter on A. V. Briesen, Esq., the defendant's solicitor herein, by handing the same to and leaving it with him personally; that he knew the person so served to be A. V. Briesen, mentioned in said letter.

Deponent further says that at the same time and place he exhibited to the said A. V. Briesen an original affidavit of Jacob Weidenmann made in the above-entitled action, said affidavit being also hereto annexed.

GOTTHARDT LITTHAUER.

Sworn to before me this 27th day of November, 1878.

CHAS. F. BOETTCHER,
Notary Public, Kings County.

(Certf. filed in N. Y. county.)

977 SCHILLINGER *vs.* GUNTHER.

NOVEMBER 25TH, 1878.

To A. V. Briesen, Esq., att'y for def't.

DEAR SIR: You will please take notice that the affidavit of Jacob Weidenmann, a copy of which unverified was served on you on Friday last, has been duly verified and is herewith shown to you and will be used at the hearing of the motion in this case to be heard on Friday next.

Yours truly, J. VAN SANTVOORD,
Compl't's Solicitor.

CITY AND COUNTY OF NEW YORK, *ss:*

United States Circuit Court, Southern District of New York.

JOHN J. SCHILLINGER *vs.* HERMANN A. GUNTHER.

Jacob Weidenmann, of said city and county of New York, having his office at No. 111 Broadway, in said city, being duly sworn

978 says that he is by profession a landscape architect and engineer, and has been actively engaged in his said profession for the period of twenty-two years last past, and during that time has had large experience in constructing sidewalks and park improvements composed of every kind of material in use for such purposes; that deponent has been employed as superintendent on work for the Government of the United States and of municipal corporations and for private institutions and private parties; that deponent has had large experience in the formation of walks of artificial stone in the manner described in the Schillinger patent and in all the modes used or known in the art; and deponent further says that prior to the issuing of the original Schillinger patent, in July, 1870, all the concrete pavements in use or known to the art were laid in one continuous mass or piece; that such walks were very little used and were of little or no value, because when they were exposed to the action of the weather they broke up into irregular shapes and were thereby destroyed; that deponent and others were engaged in various expensive experiments to produce a pavement of artificial stone which should be free from the defect above mentioned, but without satisfactory results; that said experiments related solely to the composition of material composing the pavement and the foundation on which it was laid; and deponent further says that then there was a general and fully recognized public necessity for an improvement in artificial stone pavements which would give permanence and utility to them and which would remedy the defect above mentioned,

979 namely, the tendency to break up into irregular shapes; that soon after the introduction of the Schillinger patent to the public it was generally adopted by the art and came into general use and effectually and fully met the aforesaid public want and necessity, and artificial stone walks at once became much more extensively and generally used than they had ever been before; that anterior to the Schillinger patent sidewalks had never been constructed in separate sections formed upon the ground, to the best of deponent's knowledge and belief; and deponent further says that his opinion, founded upon his experience and observation in the construction and use of artificial stone pavement formed upon the ground, is that all the value of such pavement consists in its being separated or divided into separate blocks or sections, substantially as described in Mr. Schillinger's reissued patent, with which deponent is familiar and which he fully understands.

And deponent further says that he has carefully examined and considered the disclaimer filed by Mr. Schillinger on or about the first day of March, 1875, and understands its contents; that deponent is clearly of the opinion that a sectional concrete pavement cannot be formed without interposing something between the joints; that, in deponent's opinion, the use of joists to form alternate sections is to that extent and in that manner the interposition of something between the joints of the sections while in the process of formation.

That if a walk be thus formed in alternate sections, and

980 after the setting of the first series of sections the alternate

spaces be filled with new material in a plastic state, the joints will be imperfect and irregular and there will be more or less adhesion between the blocks when the process of setting is complete. Such work would not be accepted by any one skilled in the art nor on any public work where neat and thorough workmanship is required. Such work would be worth in value when done thirty-five per cent. less than if it were constructed in the manner described in Schillinger's patent, with the disclaimed portion omitted.

J. WEIDENMANN.

Sworn and subscribed to before me this 23d day of November, 1878.

CHAS. F. BOETTCHER,
Notary Public, Kings County.

(Certf. filed in N. Y. county.)

981 *Argument of Edward Fitch, Esq., for Complainant.*

United States Circuit Court, Southern District of New York. In Equity.

JOHN J. SCHILLINGER *vs.* HERMANN A. GUNTHER.

Before Blatchford, judge.

NEW YORK, *April 14th*, 1879.

If the court please, we come before the court with a patent which, since the disclaimer was filed in the case, has been made the subject of large discussion before your honor; has been three times before the court for judicial determination, and in each instance has been confirmed, the decision having relation in each instance to the disclaimer and its effect upon the patent.

The first decision thus rendered was by his honor Judge Shipman, upon the trial of the case. Your honor will remember that that was after the filing of the disclaimer. The disclaimer was
982 filed the first of March, 1875, and the decision was, I think, in May, 1875, but at all events a very short time after the filing of the disclaimer.

The second time the patent came before the court for judicial action was in the contempt proceedings, in which a decision was rendered confirming the patent and fully sustaining our view in regard to it, the opinion delivered having reference especially to the effect of the disclaimer upon the patent.

The third time it came before the court for judicial action was when it came before your honor upon a motion for final judgment, in deciding which your honor delivered an elaborate opinion and discussed the disclaimer and its effect upon the patent.

We stand, then, before the court upon a patent which on three different occasions has been before the court for adjudication, and on each occasion the disclaimer and its effect upon the patent and the question of the validity of the patent with the disclaimed por-

tions omitted were before the court, and in each and every instance it was sustained.

And these are not the only judicial decisions which have been made to the same effect, for since the decision by his honor Judge Shipman (I can't now state the exact date) the same questions were raised before the United States circuit court for the district of California in an action at law, and the circuit judge in his charge to the jury reviewed this patent fully, the reissued patent and the disclaimer, and sustained the patent in view of the disclaimer.

983 I will present to the court a report of the charge which we have every reason to believe is entirely authentic, although it is not certified.

We claim that this is a patent not for a process alone, as the counsel for the defendant insists in his argument, but a patent for a product as well as for the process by which that product is made. I think that this is fairly inferable from the clear language of the patent, the original patent as well as the reissued patent.

The patentee starts out with the declaration in his specification: "Be it known that I, John J. Schillinger, of the city, county, and State of New York, have invented a new and useful improvement in concrete pavement; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilfed in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification."

And then he describes the manner in which it is produced.

Now, we must take this language with reference to the state of the art at the time the patent was obtained.

It is in evidence by the testimony of Mr. Schillinger, and by the testimony of the three engineers who have been called as witnesses in this case, and the whole current of the testimony is to the same effect, that prior to Schillinger's patent the only kind of concrete pavement in use or known to the art was a concrete pavement laid in one continuous piece, and it was with reference to that

984 character of pavement that the attention of the patentee was particularly and specifically called to the subject, and the suggestions occurred to his mind as to what improvements could be made. He testifies, and all the witnesses in the case testify, that a pavement laid in one continuous piece when subjected to the operation of the elements will break up from contraction and expansion into irregular shapes and become worthless; and the testimony shows that immediately after Mr. Schillinger's invention was published and made known it was adopted by the public, and concrete became in demand at once for the purpose of constructing these sectional pavements to such an extent that the importation of Portland cement into the United States went up from 400 barrels per annum to 200,000 barrels.

Now, to say that this patent covers merely a process and not the product is, it seems to me, absurd. The language clearly shows that it was the product as well as the process which was intended to be covered by the patent. Then, again, we find that the patentee in his reissued patent not only reiterates the same thing, "that I, John

Schillinger, of the city, county, and State of New York, have invented a new and useful improvemant in concrete pavement; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of the specification;" but he amends his claim by adding the first claim of the reissued patent, "a concrete pave-
985 ment laid in detached blocks or sections, substantially in the manner shown and described."

It is not a patent which covers all sectional concrete pavement. It is a patent which covers that improvement which remedied the defect in concrete pavements as known and used in the art prior to the invention, namely, laid in one continuous piece. It is for a sectional concrete pavement laid in the manner described in the specifications—that is, by putting the plastic matter upon the ground where it is to be used and so laying it that when completed it shall be in sections with joints, which permit the sections to heave separately and the blocks or sections to be taken up separately. Another effect of the joints is this, if one section becomes fractured or broken for any cause that fracture will not run across into the adjoining block or section, whereas if it is all in one continuous piece it will run to the outer edge of the pavement, wherever that may be.

The gentleman says that our product is substantially a concrete pavement made of sections formed elsewhere. We claim nothing of the kind. We never have claimed anything of the kind—that is to say, although there is no proof whatever in the case that a pavement of that kind had ever been made in this country or was known to the art before our invention, yet it was a thing which might be done and which was so nearly in accordance with the brick pavement and with the natural stone pavement and with the wood pave-
ment—all pavements in use except cement pavement being
986 in sections—that we did not claim to cover it or claim it as an original thing. What we did claim was the formation upon the ground where it was to be used of a pavement of plastic material laid there while it was in the plastic state, which when complete should be in blocks or sections.

Now, if a cement pavement constructed of sections manufactured elsewhere could be used, why is it not used? Our prohibition or our exclusive privilege does not prevent the public from using that kind of pavement. A brick pavement is a sectional pavement made of plastic material manufactured elsewhere and laid in sections; but why is not a cement or concrete pavement formed in that way used? Because, in the first place, the expense excludes it. It is far too expensive to manufacture the blocks elsewhere and bring them and lay them down in a particular place. Not only that, but when laid the uniformity of surface could not be obtained which is obtained by our process, which makes a perfectly uniform surface.

Then, as to durability. If the sections are formed elsewhere and laid upon prepared ground, owing to the imperfect condition of the surface upon which it would be laid, it would get out of shape in a

short time. Owing to all these causes a cement pavement laid in blocks formed elsewhere is impracticable. It may be made, but it is far too expensive and liable to so many defects that it is excluded in the art and not used.

Our claim does not cover any such pavement; but after setting forth in our specifications how we lay this pavement we simply say

987 that we claim a concrete pavement laid in detached blocks or sections substantially in the manner shown and described in our specifications, and that is not a sectional pavement of blocks manufactured elsewhere and brought there and laid upon the ground. It is a sectional pavement of plastic material formed upon the ground where it is to be used so divided and separated while in the plastic state by introducing something in the joints between the different sections while the material is in the process of setting that the sections shall be substantially separate when the work is complete.

But the gentleman claims that the disclaimer has taken out of the specifications all that sustains this first claim, and that therefore this first claim must fall to the ground. This is his argument. Well, I put against his argument the opinion of Judge Shipman, in which that subject is judicially determined. He holds that the first claim is valid and good, notwithstanding the disclaimer. I put, in addition to that, your honor's opinion, which coincides with Judge Shipman's opinion upon that subject, so far as the subject is reviewed in your honor's opinion. It is referred to, and I think the opinion is quite distinct upon that point. I put against it, also, the charge of the judge of the circuit court of California, in which the subject is elaborately and fully reviewed, and he holds the same thing. In addition to all these—for I never attach much weight to opinions that are not sustained by reason, that cannot be supported by clear logic and a plain statement of the reasons for the opinions—I say

988 that the opinions are well founded upon logic and a fair reading of the specifications in the reissued patent, with the disclaimed portions omitted.

Now, if your honor will take up those specifications, with which your honor is very familiar, and simply omit from them the words which are disclaimed, your honor will see that there is abundant support in the remaining portions of the specifications, which are still left untouched by the disclaimer, to sustain the first claim, which is "a concrete pavement laid in detached blocks or sections, substantially in the manner shown and described." There cannot be any doubt about that.

We were not, therefore, obliged to wipe out that first claim, because we disclaimed the formation of blocks or sections in the manner in the disclaimed portions described, and it could not logically and properly be said that we put those portions which were disclaimed into the reissued patent for the purpose of sustaining that first claim, for the very plain and obvious reason that, taking out the disclaimed portions, there is still enough left to fully sustain that first claim and to justify it in all respects.

In connection with this branch of the subject and to sustain our

position I will call the attention of the court to the following propositions and authorities:

If a patentee makes a claim which is not well founded in the same patent with other claims which are well founded he may disclaim, within a reasonable time, that which he had no right to claim,
989 and then his patent will be good as to the residue—as good as if it had been issued originally only for the claims which are valid.

Seymour *vs.* McCormick, 3 Blatch., 209, S. C.; 19 How., 96.
Tuck *vs.* Bramhall, 3 Fisher, 400, S. C.; 6 Blatch., 95.
Taylor *vs.* Asher, 4 Fisher, 449, S. C.; 8 Blatch., 315.

The law which requires and permits a patentee to disclaim is not penal but remedial. It is intended for the protection of the patentee as well as the public and ought not therefore to receive a construction that would restrict its operation within narrower limits than the words fairly import.

O'Reilly *vs.* Morse, 15 How., 62.

After a disclaimer has been properly filed the construction of the patent must be the same as it would be if the matter so disclaimed had never been included in the description of the invention or the claims of the specifications.

Dunbar *vs.* Myers, 11 O. G., 35.

Now we are before the court with this patent thus judicially sustained and defined. We have proved the infringements of the patent clearly and distinctly as we have averred them; but at this point we are met with new issues, and they arise in this way: Your honor's decision gave us only nominal damages, holding that every single act of infringement which we charged and which we proved was in truth and in fact an infringement of our patent,
990 sustaining our view of it in all respects; but your honor held that we had adopted the wrong rule of damages, and for the purpose of enabling us to correct the error which in that respect had been committed we asked the court to send the case back to the master to take additional testimony.

We introduced in support of that motion four affidavits—one by Mr. Schillinger, one by Mr. Bogart, one by Mr. Radford, and one by Mr. Weidenmann. In the affidavit of Mr. Schillinger, which was made at considerable length, reference was made to the various experiments which he had tried in this matter and to the conclusion which he finally arrived at, that the disclaimed portion—the process described in the disclaimed portion of the reissued patent—was impracticable and could not be used. The language seemed, in the mind of the court, to justify the inference that the complainant arrived at that conclusion some time before he filed his disclaimer, and thereupon the counsel for the defendant moved to have the patent declared invalid because the patentee had unreasonably delayed to file his disclaimer. The court looked into the issues as made by the original pleadings, and came to the conclusion that no

such issue had been raised by the original answer, and the court suggested (I think I am right in so stating) that if the counsel for the defendant should then make application to the court for leave to amend his answer by raising that issue the court would grant that motion, and thereupon the counsel for the defendant, acting upon that suggestion, made his motion, and the court granted the order. Now, for the purpose of showing exactly what the
991 issues thus made are, and exactly what the court permitted to be put in issue in this case, I refer to the order of the court. It is in the defendant's record in this case, on page 3: "Upon reading the affidavit of John J. Schillinger, the complainant, sworn to before Charles F. Boettcher, notary public, on the 22nd day of November, 1878, and which was read and filed December 20th, 1878, and the proposed amendments to the answer herein, sworn to December 23d, 1878, and on motion of A. V. Briesen, Esq., defendant's solicitor, and after hearing Edward Fitch, Esq., for the plaintiff, it is ordered and decreed:

"1st. That the answer of the defendant, filed herein January 29th, 1873, be, and the same is hereby, amended by inserting therein the following allegations:

"And this defendant, on information and belief, further answering, says that, for the purpose of deceiving the public, the descriptions and specifications filed by the patentee in the Patent Office, and which is contained in his said reissued letters patent, was made to contain less than the whole truth relative to his alleged invention or discovery, or more than is necessary to produce the desired effect, and that his reissued patent is therefore void and of no effect whatsoever.

"And this defendant, on information and belief, further answering, says that the complainant in his reissued letters patent claimed to be the original and first inventor or discoverer of a material or substantial part of the thing patented, of which he was not
992 the original or first inventor or discoverer, and that said part is embodied in his disclaimer filed herein, but that the matter so disclaimed was not introduced in the reissued patent through inadvertence, accident, or mistake, and without any willful default or intent to defraud or mislead the public; but, on the contrary, that it was introduced in the reissued patent deliberately and with the intent to defraud and mislead the public.

"And this defendant, further answering, says, on information and belief, that the complainant has unreasonably neglected or delayed to enter his disclaimer, and that he therefore is not entitled to the benefits of the disclaimer, and that the complainant well knew, as early as the year 1873, that he was not the original and first inventor or discoverer of the part of his reissued letters patent which is described in his said disclaimer.

"2nd. That the complainant have ten days after the service of a copy of this order to file his replication to the answer as amended.

"3rd. That hereafter the parties take proofs as to the subject-matter of said amendments, but to no further extent, and not otherwise, before John A. Shields, examiner.

"4th. That upon such proofs, when taken, and upon the proofs already taken, the cause shall be brought to final hearing on the 1st Monday of April, 1879, and that the defendant have thirty days after the filing of such replication to put in his proofs to support the allegations of said amendments, and the plaintiff have thirty
993 days after the closing of the defendant's said proofs to put in his proofs in reply thereto.

"5th. That this cause may be now placed upon the equity calendar of this court by either party, and be noticed for hearing by either party for the first Monday of April, 1879.

"SAM'L BLATCHFORD."

Now those are the issues. The two issues raised by this answer are, first, fraud and deceit on the part of the complainant in obtaining his reissued letters patent; second, unreasonable delay in filing the disclaimer. So far, then, as the questions now before the court are concerned, those are the two issues to be determined—to be tried. As the court finds those issues so judgment must go.

The issue of fraud, which is the first of these issues, is a question of fact. Fraud is always a question of fact. The amended answer charges fraud and deceit. The defendant was under the necessity of alleging fraud and deceit on the part of the complainant in order to bring his defence within the provisions of the statute. If the fraud and deceit were wanting, then the acts charged upon the complainant were done through inadvertence, accident, or mistake and could be remedied. They would not necessarily render the patent void. The defendant was obliged to charge actual and wilful fraud and deceit. To sustain this charge the animus, the intention, must exist and be proved. If there is no animus, if there is no intention, if there is no preconceived design to defraud and deceive the
994 public, why then it is simply a mistake, an accident, or an inadvertence. The animus must exist, the intention must be formed in the mind of the complainant and carried into effect. Fraud consists in doing something which is deceitful and which is a wrong to the public or to somebody. Without that fraud cannot exist. That is very clear and cannot be disputed.

The burden of proof is upon the defendant. The party who avers fraud must prove the fraud. The burden is upon him; he must prove the animus; he must prove the preconceived design and purpose to deceive and defraud.

That burden being upon the defendant, what does he do? He takes testimony, and what testimony does he produce? First, the testimony of Mr. White, and then the testimony of Mr. Radford, and then the testimony of Mr. Bogart, and then the testimony of Mr. Weidenmann, and then the testimony of Mr. Brandt, and that is all the affirmative testimony which he introduced. And this testimony is introduced for the purpose of establishing, first, that the disclaimed portion of our reissue patent describes a process which cannot be carried into effect, which has no utility. That is the first step in his proofs. Well, we are very glad to get him to that position.

When the disclaimed portion of the reissued letters patent was in

the patent and was not disclaimed the defendant was strenuously asserting that there was no utility in it, and that the thing therein described could not be done. As soon as we had taken it out by our disclaimer he changed front at once and asserted with
995 equal emphasis that it was of practical utility, and was a mode by which a pavement could be formed, and he fought the case upon that line of action until he conceived the idea of changing back again, and now he comes before the court and says that it was so plain and so simple and so apparent that that was an utterly useless, impracticable mode of proceeding to form a pavement that we must have known that it was impracticable; that any man skilled in the art must have known it; that all these engineers knew it; that Schillinger must have known it, and knowing that it was impracticable, put it in the reissue with the preconceived intention of deceiving somebody by it. Well, I am very glad we have at last come to an accord and understanding upon the proposition that this is an utterly impracticable mode of forming a sectional pavement; that there is no utility in it, and that a sectional concrete pavement cannot be produced upon the ground where it is to be used without introducing something to form the joints.

Well, right here on the question of intention to defraud, I want to say to the court that I cannot by any mode or process of reasoning within my powers find any ground whatever for the assertion that any fraud can be perpetrated by the insertion in the specifications of that which is absolutely of no utility whatever and is without value. Who is deceived? Who is hurt by the insertion of this utterly impracticable thing in the patent? How is it material? It is absurd to say that the public is excluded from the use of it because it is put in our patent. The public is not excluded from the use of it by its being put in our patent. It is excluded
996 because the immutable and unchangeable laws of nature forbid its use. The thing cannot be done. A man may experiment with or without the exclusive privileges of the patent forever, and cannot make such a pavement in the manner described in the disclaimed portion of the patent.

Now, who is hurt, who is deceived, who is defrauded, who is injured, whether that thing be in or out of the patent? Where is the deception, where is the fraud?

We will assume, for the purpose of argument, that it had some utility that might be made the subject of fraud and deception in some way or other, and see how near the defendant comes to proving the animus.

The defendant directs his testimony to the establishment of two propositions:

First. That it was plain and self-evident that a sectional pavement could not be formed in the manner described in the disclaimed portion of the reissue patent—so plain and self-evident that Mr. Schillinger must be presumed to have known that fact.

Second. That Radford, Bogart, Weidenmann, and Brandt had held conversations with Schillinger on numerous occasions, in

which Schillinger had been informed and in which he had admitted that a sectional pavement could not be formed in that way.

Mr. Fitch here proceeded to make a full and careful review of all the testimony presented by the defendant to sustain the allegations contained in the amended answer, and urged that, as respects
997 the first proposition advanced by the defendant, the proofs show that (in the language of the witness Radford) "it was a matter of considerable interest to find out the best method of constructing sidewalks and foot-paths for park purposes;" that the method disclaimed was made the subject of various discussions and experiments by the complainant and defendant and others, and that the conclusion that it was impracticable was never finally settled until at or about the time the disclaimer was filed. The proofs show that it was an open question whether that was an available method of constructing a sectional concrete pavement until at or about the time mentioned, and that soon after the disclaimer was filed the defendant asserted and claimed that he could and did construct a pavement in the manner disclaimed.

It cannot, with any show of reason, be claimed that Schillinger should be presumed to have had previous knowledge of facts which were the subject of doubt, discussion, and experiment by all parties interested in the subject simply because the final result of those discussions and experiments was the establishment of such facts.

As respects the second proposition, the testimony offered by the defendant is insufficient to sustain it. It consisted solely of alleged conversations had by the several witnesses 7, 8, 9, and 10 years previously—conversations vaguely and indefinitely remembered—conversations casually had and not committed to writing and recalled by the witnesses only by the promptings of counsel, uncer-
998 tain as regards dates and still more uncertain as regards the language used, and which, when stated in such uncertain, halting, and defective manner, did not even purport to sustain the allegation of existing knowledge on the part of Mr. Schillinger, which they were used to prove.

When it is borne in mind that it is by this testimony that the defendant seeks to convict the complainant of fraud and willful deception, the utter and complete failure of the testimony to accomplish the object for which it is used will be plainly apparent. Such testimony is unworthy of serious consideration in determining a question of that character, and we appeal with confidence to the court when we ask that it be treated as it deserves.

But they rely upon the affidavit of Mr. Schillinger himself. Now, I admit that there was some room for criticism in regard to the language which is used in that affidavit. The affidavit is found in the complainant's record on page 50, and also in the defendant's proofs on page 36.

The COURT: Mr. Fitch, there is a sentence that begins on the 3rd line of page 39 of the defendant's proof that I would like to call your attention to.

Mr. FITCH: "That deponent has never known any cement pavement constructed in sections formed on the ground for actual use?"

The COURT: Yes; that was the sentence that I could not get along with, because if he never knew that that thing would work without something being interposed how could he swear in his reissued specification that he did know. There was the trouble, and you
999 will see it, too. He says that he never knew any cement pavement constructed in sections formed on the ground in actual use for out-door work without the interposition of something, while the material was in a plastic state, to form or complete the joints.

That is the trouble and difficulty in this whole thing, and it sticks right out there in that affidavit. I could not get along with that part of the affidavit; I might with the rest. I am only calling your attention now to the paragraph in that affidavit which was the real basis of this difficulty.

Mr. BRIESEN: He testifies to that now again.

Mr. FITCH: Certainly he does; every witness who has been called testifies to that; but what does he say: "That deponent has never known any cement pavement constructed in sections formed on the ground for actual use for out-door work without the interposition of something while the material was in a plastic state to form or complete the joints." He does not say that he never experimented with cement for the purpose of seeing whether his conclusion, as embraced in the disclaimed portion of the reissued letters patent, was or was not correct. He says that he has never known any cement pavement constructed in that way, in sections formed on the ground, for actual use in out-door work. Was it necessary that he should actually construct a piece of pavement out-doors, where it was subjected to the operation of the elements, and leave it there until it had been tried before he made his application for the reissue? Might he not from experiments made with the plastic
1000 materials in his shop come to the conclusion that that was an available mode of forming a pavement, and might he not put it in his reissued letters patent without any wrong to anybody, without stating anything which was untrue in point of fact, that was false in the sense of intentional misstatement? I think most clearly he might, and he goes on to speak in his testimony of certain experiments which he did make in breweries and in his shop, and in other places, with certain kinds of cement, from which he believed a pavement could be formed in that way, and therefore he put it in his reissued patent.

I think that will be clear enough when your honor comes to examine the testimony of Mr. Schillinger upon that subject. They all testify—every one of the witnesses who testified upon the subject says—they never saw any such pavement formed which was, when complete, in sections. He does testify, and numerous other witnesses testify, to experiments made which turned out to be not sectional pavements but in substance and effect a pavement in one continuous piece. The declaration to which your honor refers was limited to concrete pavements constructed in sections formed on the ground for actual use in out-door work.

Now, we will proceed to review the testimony of Mr. Schillinger himself.

"Q. 4. State whether you made any experiments prior to the taking of the reissue of your letters patent and whether or no your application for a reissue was the result of such experiments.

"A. I did make experiments, and the reissue was the result of such experiments.

1001 "Q. 5. State generally what experiments you made.

"A. In the summer of 1870 and in the fall of the same year I laid a concrete floor for Jacob Ruppert. This was a floor in the second story of his brewery. That floor was laid in one continuous piece, but after the floor was laid I observed that where the joists or strips of wood had been laid some opening joints appeared. This was not in all the places, but in some of them. In the same year I have laid a specimen of concrete in front of the office of the engineers in the Vanderbilt depot, in 42nd street, which has been cracked to pieces. After I had observed this I have made a piece in my shop with the same cement as was used in the Vanderbilt depot, which has shown afterwards an opening where one block has been laid against the other.

"Q. 6. Referring to the piece laid in front of the engineers' office at the Vanderbilt depot, state how and in what manner it cracked to pieces.

"A. The piece was about six by twelve feet, and it did crack in fractions irregularly.

"Q. 7. How was that piece of pavement laid?

"A. It was laid in one continuous piece.

"Q. 8. State whether you made other experiments prior to your application for a reissue patent.

"A. I did, from time to time.

"Q. 9. From those experiments which you made, as stated, what conclusion, if any, did you arrive at in regard to the neces-

1002 sity of interposing anything between the sections while in the process of formation?

"A. I came to the conclusion that cement would shrink in setting."

"Q. 13. In your answer to question 9 you say: 'I came to the conclusion that cement would shrink in setting.' State whether there would be an opening in consequence of the shrinking of the cement in setting; and, if so, at what point or place in the pavement.

"A. If cement shrinks there will be an opening somewhere, and the opening generally appears where a joist has been laid, if the cement does shrink, but good cement won't shrink.

"Q. 14. What was the character and quality of the cement which you used in the experiments which you have mentioned?

"A. It was an inferior cement, which fact I did not know when I made the experiments.

"Q. 15. Did you act upon the results of those experiments; and, if so, what did you do?

"A. I made an application for a reissue.

"Q. 19. At the time you made your application for the reissue did you or not understand that the new matter inserted in the reissue asked for was within your invention?

"A. I consulted with Mr. Hauff about it, and I did not consider that was any new matter. I considered it was my invention, or at least as a part of my invention. The principal part of my invention was to form a block pavement or a sectional pavement on the ground, on the surface. I mean to say where the sectional blocks
1003 manufactured on the spot does remain, with the only difference that the old mode of laying sectional pavement was to make them in moulds and lay them down after they became hard like a brick pavement, and it was also so understood by Mr. Hauff, and the application was made in good faith by me."

Your honor will see that he swears positively that he understood this new matter to be within his invention, sustaining entirely the construction which I claim for the patent, namely, that it was for a product also and not merely for a process.

"Q. 20. Did you afterwards and on or about February 27, 1875, make a disclaimer of a portion of the description in your reissued patent?

"A. I did.

"Q. 21. How came you to make this disclaimer?

"A. This disclaimer was proposed to me by my counsel, and I consented to it, as I found by experiment that it was impracticable to construct a sectional pavement without interposing something where a joint ought to be formed.

"Q. 22. About how long before the disclaimer was filed was it that your counsel proposed to you the disclaimer?

"A. I don't think it was over three days. I think they made application for it immediately after they had my consent to it.

"Q. 23. Before your counsel proposed to you the disclaimer what knowledge or information, if any, had you about the right to make a disclaimer?

"A. I did not know that there was anything wrong in my
1004 reissue and I did not know anything about patent law, and I never heard the word disclaimer before it was suggested to me by my counsel. I could not understand at first what they meant by disclaimer. After an explanation of my counsel what it meant I consented to it, as I was satisfied by practical experience that it wasn't possible to form a salable or such pavement which would be accepted by any engineer without interposing something. I mean to say, instead of possible, impracticable.

"Q. 24. When or at what time did you become satisfied by practical experience, as stated in your last answer?

"A. In 1874 I contracted a pavement with the Government to be laid on the Capitol ground in Washington, D. C. The contract was awarded to me by Mr. Olmstead and the work was done under the supervision of Mr. Radford. Mr. Olmstead wanted me to lay in the fall of 1874 a specimen under the same contract. They wanted me to make as close and neat joint on that pavement as possible. I laid a specimen of about 2,000 or 3,000 square feet where each alternate block was left out and then afterwards filled in of different color, and when these blocks so were formed and smoothed off on the

top I washed away the spillings which run over from the new to the old or first formed blocks with a sponge; after completed the joints or where two blocks joining each other did look or made an appearance like two pieces of wood of different color has been glued together, the way cabinet-makers does; but this pavement I
1005 had to take up again; it was not accepted by the engineer, and I myself was satisfied that I had to take it up on the ground that the pavement was badly cracked, and when the joints had opened or cracked the line of such crack was crooked and irregular; and when I broke up the pavement I found that some of the blocks only could be taken up without breaking the same, and nine-tenths of the pavement had made adhesions on the lines and broke irregular and a longitudinal crack had crossed on section of blocks across the joints all the way through the length of the whole pavement.

"Q. 25. About what time, with reference to the filing of the disclaimer, did you take up that pavement?

"A. I did not take up the pavement in the fall. I let it lay until I could commence the new pavement next year; but in about the month of January, 1875, I was certain by inspecting the pavement that it was imperfect, and then I made up my mind never to lay any pavement again without interposing something."

The piece of work in regard to which Mr. Schillinger here testifies is the same piece of work in regard to which Mr. Radford testified.

That was in January, 1875, and the disclaimer was filed the 1st of March, 1875.

That is the only large experiment in proof which could be regarded as a thorough test of the process described in the disclaimed portions of the reissued patent, and as soon as he had made it and had had an opportunity to inspect it after it had lain a short
1006 time so that he could see how it operated he came to the conclusion that that method was impracticable. He laid no more after that method, and on the 1st of March he filed his disclaimer.

"X Q. 60. Do you mean to say that when the testimony on behalf of defendant was taken in this action, during the year 1873, you had not already concluded that good cement will not shrink?

"A. I was not satisfied of it until the work in the Capitol at Washington, when I came to the conclusion it was impracticable to lay a pavement without interposing something to form the joints while in the process of formation."

Cross-question 71 is as follows:

"X Q. 71. Did you not express it as your opinion to others, as early as 1873, that 'fresh cement when placed against set cement will not adhere?'

"A. I don't recollect whether I did or not.

"X Q. 72. Did you at that time know the fact to be such as last enquired of?

"A. I did know at that time that some cement will not adhere,

but I was not satisfied or sure whether best cement would—that is to say, on a horizontal joint of a block pavement.

"X Q. 73. Well, but on the vertical joint of a block pavement were you or not satisfied at that time that adhesion will take place on all cements?

"A. I was not.

"X Q. 74. Will you swear that you had not already concluded that such was the fact as early as 1873?

1007 "A. I will.

"X Q. 75. In your affidavit you swear that you became satisfied from actual experiment and from observation that the matter added to your patent by the reissue was a mistake. Do you now mean to swear that the work done by you at the Capitol in Washington in the latter part of 1874 is the only experiment and the only observation made by you in that matter up to that time?

"A. No; I have made some other experiments. I made a block of about six inches square. Half of this block, 3 by 6, was a different color from the other half, and this was made, to the best of my recollection, in the spring or in the winter of 1873 to 1874. It was formed in a mould of 3 inches thick, and half of it was filled in first in one color and the other half, after one block had been formed, in another color. This block, after it had set, I brought to Mr. Van Santvoord's office, and I recollect distinctly that this block was laying out in front of that window till the final hearing, and I do recollect now that Mr. Fitch used it in the argument on the final hearing."

"X Q. 77. What did you make that block for?

"A. For an experiment—whether one block would adhere to the other or not.

"X Q. 78. How long before making the second half of that block did you make the first one?

"A. After the first had sufficiently set to form an edge.

1008 "X Q. 79. By the words to form an edge I presume you mean that it had become hard enough to prevent it flowing down.

"A. I mean the same as if I do manufacture a sidewalk on the street.

"X Q. 80. Was that the first experiment of that kind that you made?

"A. I do experiment all the time, and I do not now recollect whether it was or not.

"X Q. 81. Look at the circular now shown you, marked 'Exh. Schillinger Circular,' and state whether you caused the same to be printed and distributed.

"A. I believe I did.

"X Q. 82. Why didn't you print the disclaimer onto it?"

The counsel for the defendant apparently attaches great importance to the fact that when Schillinger issued his circular after the decision in this case he did not insert in that circular his disclaimer. I don't know why he was under obligations to do so. He did issue

a circular in which he stated the two claims of his patent and stated that the judgment affirmed his patent, and he had a right to state it. The omission to state the disclaimer was wholly immaterial.

"A. I believe I printed a correct copy of the judgment of Judge Shipman with the claims of my patent sustained by the decision of the court. I didn't know it was necessary to do so."

(That is to say, to print the disclaimer.)

"X Q. 83. Do you mean to say that you did not disclaim any part of the claims printed on that circular?

"A. Yes, sir.

1009 "X Q. 84. Do you mean to say that your disclaimer does not disclaim anything referred to in these two claims?

"A. I do.

"X Q. 85. In your disclaimer you state that the claim of your patent is too broad, including that which you are not the inventor. Is that statement in the disclaimer true or not?

"A. I made application, under the advice of my counsel, for a disclaimer, and I consented to it only because I was satisfied that no one could lay any satisfactory pavement in detached blocks without interposing something while in process of formation; and, furthermore, I say now, and insist upon it, that I was the first inventor of laying a sectional concrete pavement laid in plastic mass on the ground; and, furthermore, I say now, and insist upon it, if the defendant had proved or could prove that such pavement had been laid before the application of my patent I will give it up; and, furthermore, I have stated on the investigation of the motion made by me for contempt of court against Hermann A. Gunther—I have stated to the court that it was not my intention to mulct the defendant of this case, but, furthermore, I have to state that I was the sufferer in this suit."

In answer to cross-*section* 86 he says:

"A. I didn't pay no attention to the disclaimer, only to that part where nothing is interposed in process of formation. This was the only part which I paid attention to when the disclaimer was

1010 proposed to me by my counsel. The details of the legal part by filing such a disclaimer I did not understand.

"X Q. 88. I did not ask you whether you understood or understand the legal part of the disclaimer. I do ask you whether the claim of your reissued patent as obtained includes that of which you are not the first inventor.

"A. I understand that I am the first inventor to the two claims.

"X Q. 89. Then the reissued patent does not, in the claims, contain that of which you are not the first inventor. Is that it?

"A. This question is not clear to me, and I insist upon it that I was the first inventor except you can prove that you have done it before I did.

"X Q. 90. Please state whether the claims of your reissued

patent as obtained include that of which you are not the first inventor, to the best of your knowledge and belief.

"A. My claims—the first and the second claims—to the best of my knowledge, does not include anything except my invention."

The gentleman, in putting these questions, evidently had in his mind the statement in the disclaimer that the specifications and claim contained too much, and so on. Now, and is a copulative conjunction and the statement includes both, the specifications and claim taken together. He does not state that the specifications contained more and the claim contained more, but that the two taken together contained more. The statement was literally correct and the grammar was correct.

1011 Mr. BRIESEN: He means that the specification contains more, but that the claim does not.

Mr. FITCH: I mean that, notwithstanding the filing of the disclaimer correcting the specifications, by taking out that which is of no use—of which he could not be the first inventor, because it was useless and could not be made to work—by taking that out he did not destroy the first claim or invalidate it in the least. That is so held by Judge Shipman, and has been so held by this court, your honor presiding, and by the judge of the circuit court in California.

On the 26th page, complainant's record, is this question:

"X Q. 105. Were any of these people that infringed on your patent before the reissue was taken laying cement pavement on the ground without interposing anything between the joints during the process of formation?

"A. No, sir; there has not been any before, neither after up to this day, to lay the pavement on any sidewalk in this city or anywhere else laid a sectional pavement where they have not interposed something."

Now, that is all plain and literally true, for in every instance where the attempt has been made to lay a sectional pavement without interposing something between the different sections while in process of setting it became a pavement of one continuous piece.

The different sections adhered closely together, as the com-
1012 plainant elsewhere describes it, as two pieces of wood glued together. It is literally true, as the evidence in this case shows, that no man has ever laid a sectional pavement for out-door service composed of plastic material, laid down on the ground in a plastic state, without interposing something to form the sections which has been a sectional pavement when completed. It has been one continuous piece according to the old mode of laying cement pavement; and that harmonizes with the statement which your honor referred to in Mr. Schillinger's affidavit, on which so much reliance is placed by the counsel for the defendant. The language which he there used was "that deponent has never known any cement pavement constructed in sections formed on the ground for actual use in out-door work without the interposition of something while the material was in a plastic state to form or complete the joints."

Whenever the attempt was made the adhesion took place, and the pavement, when completed, was not in sections, but in one continuous piece. The testimony of the complainant on this subject is corroborated by the testimony of all the other witnesses in the case.

On page 36 of the complainant's record these questions were put:

"X Q. 155. You have testified that your counsel proposed the disclaimer. Who were they?

"A. Messrs. Van Santvoord and Fitch.

"X Q. 156. What reason did they give you when they proposed the disclaimer?

1013 "A. I believe it was about some mistake in the reissue. As far as I did understand the meaning was and it was my impression that the disclaimer was made because the other party was trying to prove that a cement floor laid in one continuous piece was laid sectional, because joists had been used to form such a floor. That was the understanding on my part.

"X Q. 157. Did you tell your counsel before the disclaimer was filed the result of your Washington experiment?

"A. I did.

"X Q. 158. What did you tell them about that at that time?

"A. I told them that I was satisfied that it was impracticable to form a sectional pavement without interposing something, and that such pavement would be worthless. That was my experience in practice."

I recollect very well that when the subject of the disclaimer was mentioned in that discussion the first question I asked was whether he was satisfied from successive experiments that there would be adhesion between the sections, and that it was impossible to form a pavement in that way, and he answered me that he had made such experiments, and it was on that information thus derived that I based my advice, and I believe that Mr. Van Santvoord was governed by the same fact.

"X Q. 159. Do you consider yourself still the first inventor of the part of the patent which you disclaim?

1014 "A. I consider myself the inventor of the sectional pavement laid in plastic mass on the ground?

"X Q. 160. (Question repeated.)

"A. I do believe to-day that no one ever tried to form a sectional pavement without interposing something. At least I have not seen it, and I do not claim what I have disclaimed.

"X Q. 161. Then, as I understand you, you disclaim part of your patent only because that part was impracticable. Is that it?

"A. I understood it so.

"R. D. Q. 162. Cross-question 122 is as follows: 'How long have you been in New York, Mr. Schillinger?' and your answer is, 'Since 1852.' State of what country you are a native, and what your age was when you came here in 1852.

"A. I am a native of Germany, of Baden, and was twenty years and six months old when I came to this country.

"X Q. 163. Do you consider yourself thoroughly familiar with the English language when spoken and written?

"A. I do not. I am not thoroughly familiar with the English language only in ordinary conversation—ordinary business language.

"R. D. Q. 168. In your affidavit, Exh. Affidavit Schillinger, you state as follows: 'That deponent was afterwards satisfied, from observation and actual experiment, that this was a mistake, and that when blocks were laid in the manner above stated there would be adhesion between the blocks,' etc. To what time did you
1015 refer or what time did you have in your mind when you used the words 'was afterwards satisfied.'

"A. I mean after the pavement on Capitol ground in Washington was laid. I meant at that time.

"R. D. Q. 169. You state further in the said affidavit marked Exh. Affidavit Schillinger as follows: 'And deponent further says that when the testimony on behalf of the defendant was taken in this action his later conclusion on that subject was confirmed by the introduction of testimony by the defendant to the effect that fresh cement when placed against set cement will adhere,' etc. State to what time you understood that language to refer, especially where you refer to your later conclusion on that subject.

"A. The later conclusion I meant after the pavement in Washington was laid and not immediately after the testimony of Bandman, and so I did understand the affidavit. I was not confirmed when that testimony was taken that fresh cement would adhere, but the testimony of Bandman and others attracted my attention, and afterwards I met Mr. Bandman on Broadway and we talked about cement. He said he had a kind of cement, which he called the Stettin Star cement, does not shrink. After Bandman and Holman went out of business the agent of the cement factory offered me the whole stock of cement which Bandman and Holman had on hand, and I bought it. That was in the summer or fall of 1874. This cement was used on the Capitol work in Washington, and then I was satisfied that the testimony of Bandman was correct."

1116 He says again in answer to redirect question 173:

"A. I admitted to it when Mr. Fitch showed me the printed testimony of Mr. Bandman, but I did not understand it then as I do now. I meant then that the words 'afterwards I was confirmed' I understand that it meant the work on the Capitol.

"R. D. Q. 174. What had you in your mind at the time when the words referred to were read over to you?

"A. I had in my mind that the testimony of Bandman attracted my attention and that I was confirmed, after my experience in the winter of 1874 and 1875, that good cement would not shrink, and consented to that part of the affidavit. Of course, I thought it was all right."

This completes our review of the testimony of Mr. Schillinger, and I insist that, taken in connection with the other proofs in the case, it shows most conclusively that Schillinger acted in good faith in obtaining his reissue; that at the time he took that reissue he had made some experiments—not in out-door work; not by laying the pavement as he did upon the Capitol ground in Washington—but he had made experiments, and the result of his experiments was so far satisfactory to his mind as to justify his application for the reissue. That is the question—whether it was satisfactory to his mind, so that he acted in good faith in making the application. It
1017 was satisfactory to his mind that a pavement might be laid in the manner described in the disclaimed portions of the reissued letters patent—that is to say, that he might lay fresh cement against set cement, one section being formed after the other, without interposing anything, and there would be an open joint. Now, that question has been an open one, about which there has been a good deal of discussion in various stages, and I am happy now that we agree that no such shrinkage will take place.

I desire to call the attention of the court to something else which appears in the record and to which your honor's attention has not been called before, because those proceedings were had before Judge Shipman.

The COURT: Where does it appear he made these experiments before 1871?

Mr. FITCH: It appears in his testimony.

The COURT: Whereabouts?

Mr. FITCH: On pages 3 to 6 of the complainant's record, answers to questions 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.

He swears all the way through that that application was made in good faith. He swears it was made as the result of these experiments. To be sure, these experiments were limited—were not as extensive as they ought to have been—but I am sure the court will not say that he must exhaust the whole subject by a complete and perfect experiment before he arrives at a conclusion. The information was sufficient to justify him in making an application for a reissue. It certainly is sufficient to sustain the allegation on
1018 his part, and which we insist upon, that the application was made in good faith and not with intent to defraud; and they show nothing whatever—there is nothing to show knowledge on his part at that time that the contrary was true. In the accounting before the master, which your honor will remember was long after the filing of the disclaimer—for the disclaimer was filed before the trial—in the accounting before the trial Mr. Gunther was called and testifies how he laid some portions of pavement:

"In forming the second block I interpose nothing between it and first. We put the plastic material directly against the edge of another already formed. It will make the joint partly free when the cement sets; I mean more or less according to mode of setting or shrinking. I could not state exactly how free, for it is very small from shrinkage. The shrinkage depends somewhat on size of block; don't think shrinkage will be uniform on all sides of the block."

Now, that is what he alleges on that subject at that time. His counsel now admits that you cannot form pavements in that way. When the contempt proceedings were instituted they arose in this way: My client made observations of the work then in progress in the city-hall park and satisfied himself that the defendant was infringing and violating the injunction, and he therefore applied to the court, upon affidavits, and obtained an order to show cause why the defendant should not be punished for contempt, the defendant having an opportunity to be heard. In our affidavits we set
1019 forth that the defendant was forming the blocks or sections by the interposition of something between the blocks to form the joints. They came into court with affidavits in opposition before his honor Judge Shipman. We have these affidavits here. There are several of them. One was Henry Steiner, and he testified: "I was in H. A. Gunther's employ."

Mr. BRIESEN: Please read all of them.

The COURT: I don't think it is pertinent to the case.

Mr. FITCH: It is pertinent to show that they took two views of this question and that after the filing of our disclaimer they still insisted they could form pavements in the manner disclaimed.

The COURT: I am not going over that matter; it has nothing to do with this case.

Mr. FITCH: I simply wanted to show that this question was an open question and that there was discussion on both sides; that they themselves alleged that pavements could be formed in that way down to the last proceedings in this case.

Mr. BRIESEN: I deny that.

The COURT to Mr. Fitch: Proceed with the case. The simple question is whether Mr. Schillinger had good reason to believe, and honestly did believe, the truth of what he put in his reissue. That is all there is to the case.

Mr. FITCH: Well, I so regard it and I have so regarded it all the time, and I think that we have established beyond question his entire good faith. As I said in the commencement of my argument, this question of good or bad faith is one that depends upon
1020 the mental operations of the man—the intent of the party. All the parties are not of equal intelligence. If the party proceeding in this matter did make an application for a reissue and believed he had the right to do so and made it in good faith, no matter if it turns out afterwards that there is something untrue inserted in his specification, the question of fraud is effectually answered. There is no fraud.

Now, in view of this suggestion from your honor, I simply want to call the attention of the court to the materiality of his particular process which is described in the disclaimed portion of the reissued patent. I have a number of authorities here on the subject. I insist, in the first place, that the plain meaning of the statute is that if the party proceeds in good faith he shall not be prejudiced, even though error is inserted; though his statement turns out to be untrue. If he proceed in good faith it is the intent of the statute to shield and protect him. In the case of O'Reilly *vs.* Moore, 15 How.,

62, it is held that the law which requires and permits a patentee to disclaim is not penal, but remedial, and is intended for the protection of the patentee as well as the public.

The gentleman argues this question as though the presence of a misstatement in the specifications, without regard to the good faith of the patentee, amounts to absolute fraud, whether the misstatement be in relation to a material matter or not, and the patent shall be declared void for that reason. The statute admits of no such construction. It proceeds upon the assumption that, however
1021 prudent and honest the patentee may be, he may still get into the specifications and claims things which are not true and which he is not entitled to have there, and it gives him an opportunity to remedy the error by reissue in the one case or disclaimer in the other. The courts have uniformly held, as far as I have been able to find any decisions bearing upon the question, that to subject a party to the penalties that attach to fraud or misrepresentation the thing in regard to which the fraud or misrepresentation is alleged to have been made must be a material part of the invention. Now, in this case, we claim that the process described in the reissued letters patent and subsequently disclaimed was wholly immaterial, and about that there can be no doubt. I can't see how there was any materiality to it. It was of no consequence as affecting the invention or rights of the parties, whether that matter was in or out of the specifications. If it was in it gave to the patentee no exclusive rights or privileges. It was a thing which he could not use or exercise; there was no utility in it. It gave him no exclusive privileges, and if it was out it gave no benefits to the public, to the defendant, or to anybody else. It was like any other immaterial matter—irrelevant—having nothing to do with the invention. Its being there, then, could not prejudice the plaintiff—ought not to prejudice the plaintiff—according to all the rules established by the decisions and according to the plain, common-sense meaning of the language of the statute and according to the well-established rules which govern human action. In this connection I
1022 desire to call your honor's especial attention to the charge of Judge Nelson in Hall *vs.* Wiles, 2 Blatch., 198.

In considering the opinion which your honor delivered upon the application for final judgment, and which was a very careful and very thorough review of the whole case as then presented, I was strongly impressed that your honor, not being an adept in those matters and not having the full information that you now have, entertained the idea that the disclaimed portion of the reissue—the process therein described—was a practicable thing of some utility; that pavements could be laid in that manner which would possess value, and I am not at all surprised that you should have arrived at that conclusion. Perhaps the very fact that we inserted it and afterwards disclaimed it would have justified your honor in arriving at that conclusion, but with the facts now disclosed and before your honor it is beyond dispute, it is conceded on all hands, assented to by all parties, that the thing is entirely useless—possessed of no value—and that pavements cannot be formed in that way, and the truth of

that proposition does not depend upon the assent of the parties to this action. It depends upon the highest and best testimony that can be produced on this question. Three of the best engineers in this community testified to it. They are entirely disinterested and thoroughly intelligent, and their opinions are founded upon actual experiments proving beyond question or dispute that this disclaimed process is of no utility or value whatever.

1023 Now, that being the case, there is an end absolutely to the questions which have been raised by the amended answer, because all these questions of fraud which are thereby raised and to which the testimony has been directed turn upon and depend entirely upon the question of the materiality of the subject to which they relate.

Now, the court has found and has uniformly held whenever announcement has been made of the opinion of the court upon the subject that the patentee, Schillinger, did make a new and useful invention, and the testimony shows that it was not only new and useful but very valuable—an invention which worked an entire revolution in the art to which it related and in its use conferred great public benefits. It was immediately adopted and accepted by the public, and so great was the revolution which it accomplished in the art that the importation of Portland cement rose from 400 barrels per annum to 200,000 barrels per annum. This fact demonstrates the value of this invention.

Now, we ask whether such an invention as this, possessing such value, sanctioned, too, by the decisions of the court—three successive decisions of this court and one in California and one in Baltimore—shall be swept away and destroyed upon the allegation that the patentee did something inconsistent with good faith in obtaining his reissued letters patent; and that, too, when the testimony which was introduced to sustain that allegation fails utterly to prove that there was any want of good faith—any fraud—any deceit practiced on the part of Schillinger, even assuming that the sub-

1024 ject-matter was material. It was not material; but, if it had been material, the proof fails utterly to show any such fraud or deceit or want of good faith on the part of Schillinger as the statute contemplates as a sufficient ground for vacating a patent or rendering it useless.

I am particularly anxious about this case and very solicitous, because upon it turns the right of my client to this invention which he has made and which is so useful and valuable. If the court should sustain the position which the counsel for the defendant takes it sweeps away the right of my client entirely. That, I think, would work great injustice and wrong to my client.

I believe that I have now said all that duty requires me to say upon these issues. Very little remains. Respecting the one question about which we first started out, the question of damages, if the court should find against us there is an end of that question. If the court should find in our favor upon these issues I suppose our motion to send the case back to the master to take further proof would be in order. It is true we have almost lost sight of that ques-

tion in the subsequent proceedings which have raised issues of paramount importance. I do not regard the question of damages of much importanee to my client, except as it bears upon the patent and his rights under it, for I am informed, and I presume correctly, that the defendant is utterly irresponsible, and if we recover a judgment against him for damages it cannot be collected. I now submit the case for the decision of the court.

1025 And the complainants, to maintain the issues on their part, offered and put in evidence before the master and used at the hearing as follows:

Depositions of A. H. Perkins, Philip Wardsworth, George W. Hey, & J. B. Hurlbut in words and figures as follows, to wit:

1026 United States Circuit Court, Northern District of Illinois. In Equity.

JOHN J. SCHILLINGER and Ano. *vs.* J. B. HURLBUT.

In consequence of the sickness of counsel for complainants and of pressing engagement of counsel for the respective parties it became impossible to comply with the date set out in the interlocutory decree in this cause for taking proofs upon the accounting before H. W. Bishop, Esq., the master before whom said cause was referred for accounting. The said proofs were taken at earlist opportu-
1027 nity by agreement and consent of counsel, and the respective counsel do hereby stipulate and agree to wa-ve any and all objections that either might take; that said proofs were not taken within time, and that the proofs as taken may stand as if regularly taken within the dates allotted by the court in the aforesaid decretal order.

Dated Chicago, July 18, 1884.

DUELL & HEY,
Sol'rs for Compl'ts.
GEO. W. HEY,
Of Counsel.
WEST & BOND,
Sol'rs for Def'ts.

1028 In the Circuit Court of the United States for the Northern District of Illinois. In Chancery.

JOHN J. SCHILLINGER *et al.*, Complainant-,
vs.
J. B. HURLBUT, Defendant.

Testimony taken before Henry W. Bishop, master in chancery of said court, —day, 3 day of July, A. D. 1884.

Present: Mr. Banning, for complainant-; Mr. Bond, for defendant.

A. H. PERKINS, a witness on behalf of the complainant-, being first

duly sworn, was examined in chief by Mr. BANNING and deposes and says as follows:

Int. 1. Please state your name, age, residence, & occupation.

1029 A. A. H. Perkins; contractor.

Q. Contracting in what kind of work?

A. Pavement.

Q. State whether you are acquainted with the pavement know- as the Schillinger pavement.

A. I am.

Q. Are you acquainted with the John J. Schillinger patent, sued on in this case?

A. Yes, sir.

Q. Have you ever read that patent?

A. Yes, sir.

Q. State whether you ever saw any pavement that was like that described and claimed in the Schillinger patent.

A. Yes, sir.

1030 Q. State whether you ever laid any of the Schillinger *patent.*

A. Yes, sir.

Q. About how much?

A. I could not tell you that; acres of it.

Q. State whether you have laid any of that kind of pavement since August 26, 1882.

A. Yes, sir.

Q. Were you laying under the authority of the Schillinger patent or otherwise?

A. Yes, sir; I was.

Q. Since that date state what authority or license you had and were operating under.

A. Under a license or deed from Schillinger for this State

1031 and under contract for other States.

Q. Was that license or deed in writing?

A. Yes, sir.

Q. Will you look at this paper and state what it is?

A. This is the deed in writing.

Q. That is the authority you have been acting under since that time?

A. Yes, sir.

Q. This license appears to be a license from Schillinger to Elmer J. Salsbury and is the license you are operating under?

A. That is outside of this particular State here; there was

1032 a deed given; it is virtually one and the same thing, however.

Q. The pavement you have laid under the Schillinger patent since August 26, 1882, was laid under a deed for this State; a deed exclusively for this State?

A. Yes, sir.

Q. About how much pavement have you laid under that exclusive license?

A. I could not tell you in this State, nor could I tell you in the State of Minnesota. I have laid a large amount of it.

Q. All you made outside of this State was under this paper I have shown you?

A. Yes, sir.

1033 Q. While all you laid in this State was under the exclusive writing you have mentioned for this State?

A. Yes, sir.

Q. Stat- to what extent the terms and conditions of this license which you have identified between Schillinger & Hurlbut have been carried out, if you can.

A. As far as our firm is concerned it has only been carried out in the State of Minnesota; haven't done any work outside the State- of Illinois and Minnesota.

Q. State whether any money has been paid under this license, if you know.

A. Yes, sir.

Q. How much?

1034 A. $750 at one time.

Q. It provides, I see, for the payment of a license fee on 25,000 square feet of pavement each year, whether such pavement was laid or not. *Q.* State whether this payment you have mentioned of $750 was on account of that provision.

A. On account of that, but for this lawsuit he did not pursue it as he would have done. We should have been more particular about carrying out the contract—at least put forth more effort in the matter—but under the circumstances it was against us to do so,

1035 except in the State of Minnesota, where we had laid large amounts of it.

Q. State whether Saulsbury is now living.

A. He is not.

Q. State how far, if in any respect, his death prevented the complete carrying out and fulfillment of the contract.

A. It unsettled those matters between us, of course.

Q. What was the rate per foot fixed upon by this license?

A. Five cents.

Counsel for complainant- offers the said license from Schillinger to Saulsbury in evidence, and the same is marked "Saulsbury license."

1036 A. What other licenses, if any, have you granted for the laying of the Schillinger pavement sued on, to your knowledge?

A. Since the time of that license being granted, a year after or something like that, we purchased the Schillinger patent for the State of Minnesota under that other contract there and paid for it.

Q. So that you became absolute owners for the State of Minnesota under that patent?

A. Yes, sir.

Q. State what licenses, if any, were granted by you after such purchase.

A. There was a license granted to A. F. Parkhurst, of Minneapolis. I can give you the number of his office if you desire.

1037 Q. You may give it.

A. 213 Hennepin avenue; also the Northwestern Cement & Concrete Company, No. 8 Syndicate block, Minneapolis.

Q. How much did these parties give you for the privilege of laying the Schillinger pavement under the patent sued on?

A. Fifty cents per square yard.

Q. State whether they entered on the laying of pavement under this license or not.

A. Yes, sir; have been laying the whole season.

Q. State whether any payments under such license have been made to you.

A. They have.

1038 Q. State how long such license was to continue.

A. The licenses were only made for this year.

Q. Were they in writing?

A. Yes, sir.

Q. Have you them with you?

A. I have not them with me; they are at the office, in Minneapolis. Our firm there is Watson, Perkins & Forrest, 213 Hennepin avenue, Minneapolis.

Q. You have stated that your firm has been laying this Schillinger pavement since the 26th of August, 1882; state whether any other firm was laying pavement in the city of Chicago under the authority of the Schillinger patent during that time.

A. Nobody but Saulbury and us.

1039 Q. State what facilities for laying pavements your firm and Mr. Salsbury had during this time. How much could you lay?

A. We could lay all we could get.

Q. Do you mean you could supply the demand for that kind of pavement?

A. Yes, sir; either firm could have done it.

Q. State whether or not you were prepared all the time to lay all the pavement that there was demand for in the city of Chicago during that time.

A. We were.

Q. I will ask you to state what profit your firm made in

1040 the laying of this Schillinger pavement per foot.

Objected to for the reason that the profit on the pavement was immaterial, the question being what advantage was derived from the use of the Schillinger invention.

A. We calculated at least 33 per cent.; that is our ordinary profit on the work—at least that.

Q. 33 per cent. per square foot?

A. Yes, sir; or yard, as you please.

Q. What was your price per foot on which you made 33 per cent. profit in laying the Schillinger pavement?

A. Twenty cents.

1041 Q. State how much, if you know, of the value of the pavement or the utility of the pavement was due to the Schillinger invention claimed on the patent sued on.

A. It is impossible to make a pavement that would stand, that will not crack in every case, unless it is formed in that way in the manufacture of it.

Q. That is, unless it embodies the Schillinger invention; is that your idea?

A. Yes, sir.

Q. Then you mean to say the whole value of the pavement you have laid was due to the Schillinger invention?

A. Virtually that.

1042 Q. State whether or not you have known of any demands existing in the city of Chicago during the time you have been laying pavement under the Schillinger patent for any concrete or cement pavement that did not embody the Schillinger invention.

A. There is asaphalt concrete. I can answer the question so far as cement is concerned.

Q. I mean cement pavement.

A. Nothing outside of building in the shape of sidewalks or anything of that character; basement floors are made without reference to it.

Q. I refer particularly to sidewalk pavements; as to that kind of pavement have you known of any demand?

A. None whatever.

1043 Q. For any but the Schillinger pavement?

A. No, sir.

Q. State what, in your opinion, speaking from your knowledge of the subject and the experience you have had in laying pavements embodying the Schillinger invention, would be a reasonable royalty or license fee per square foot for the privilege of laying this kind of pavement.

A. We consider fifty cents a yard at Minneapolis a fair price for it, and parties who have had experience are satisfied to pay that.

Q. As to the city of Chicago, what would be a reasonable royalty or license per square foot?

A. I should say the same. I think five cents a square foot too much.

1044 Q. Five cents a square foot you would consider reasonable for the city of Chicago?

A. Yes, sir; provided the man had any protection.

Q. During the time you were laying pavement and charging twenty cents a square foot, state whether you were subjected to any competition by parties who were unlicensed.

A. That was all the time.

Q. State how far, if at all, that circumstance affected the price you were able to charge for the same per square foot.

A. It affected it from twenty-five to thirty-three per cent.

1045 Q. Then you could have charged and the public would have been willing to pay 25 to 33 per cent. more per foot?

A. To illustrate: I can name an instance—two instances—where I could have got 20 and 22 cents and other parties had offered to do it for 14 and 16.

Q. What other parties do you mean?

A. Mr. J. B. Hurlbut.

Q. The defendant in this case?

A. Yes, sir.

Q. In such cases who would obtain the job?

A. Why, he got it.

Q. How frequently did such instances occur?

A. Quite often—of course during the summer season, not during the winter.

1046 Cross-examination by Mr. BOND:

Q. You say that a sidewalk or foot pavement cannot be made without the use of Schillinger's invention. To what do you refer as the Schillinger invention?

A. Any pavements that contemplates making joints so as to control the cracking which necessarily must occur with any pavement made of cement concrete.

Q. What do you mean by a joint that will control the cracking?

A. By cutting or by laying a joist in forming the blocks and moving it and laying another block.

1047 Q. That you understand to be the Schillinger invention, do you?

A. Yes, sir.

Q. And it is to this you attach the value of the Schillinger invention, is it?

A. Yes, sir.

Q. How much of this value do you attach to the use of joists for laying the thing off in blocks?

A. I attach the same value to it that I would in laying it down in a solid body and cutting through it—the same principal.

Q. Either one, in your opinion, is equally valuable and answers the same purpose?

1048 A. Yes, sir.

Redirect examination:

Q. State what you mean by laying in blocks by the use of joist to measure off the blocks.

A. I mean by placing joists ordinarily we take 2 x 4 and put them each side of the walk in front of the property on which the sidewalk is to be laid, and then we put a joist across the two, forming the stone the width of the walk, perhaps 8 x 4 or perhaps 6 x 4, and finish with stone. Then we remove one of these cross-joist-, 1049 placing it about the same distance, four or six feet, from the edge of the stone, and so form another one. The effect of that laying the concrete up against the joist is to make a straight, clean edge. Then, the concrete laying against it, it does not mix it

so but what it can be seperated a few days afterwards, or a few months you can pick them up seperately as if they were brick.

Q. In such cases how is the top course laid or manipulated?

A. The first bed was laid down and the top course put on it and trowelled off smooth. The next was formed in the same way,
1050 and where it comes against the other stone a trowel was inserted for the purpose of regulating the cracking of the fine stuff on top so as to make a straight joint.

Q. The description you have now given describes what you mean by laying the pavement with joist?

A. Yes, sir.

Cross-examination resumed:

Q. Do I now understand you to mean that the laying of joists includes the coating where a top course is used?

Q. It is not necessary; it is to facilitate. If one concrete
1051 stone is formed and left to be set until the top surface gets 4 to 6 hours old or older another stone can then be formed against it and it can then be trowelled off without injuring the top surface of the stone and ruining it, and it can be made straight without any reference to cutting.

Q. This last method you understand to be of equal value with the other, do you?

A. Yes, sir; one and the same thing. On large jobs this latter course could be used, but on the small jobs would be hard to be used.

1052 A. H. PERKINS, being recalled, was further examined as follows:

Mr. BANNING:

Q. State whether or not, when you were on the stand this morning, you have thought of any other sublicense that has been granted under this Saulsbury grant of August 20th, 1882.

A. I have.

Q. State what it is.

A. To E. H. Barrett, of Minneapolis, we sold one-half of the county of Hennepin for the balance of the term of the patent. In that sale we had a contract with him by which, for all pavement laid in the State of Minnesota outside of Minneapolis he was
1053 to pay us at the rate of five cents per square foot. That contract I made myself, about February or March.

Q. This kind of pavement, I believe, is laid only in the summer months?

A. That is all.

Mr. BOND:

Q. Do you understand that Saulsbury, or the Saulsbury estate, has anything to do with the State of Minnesota?

A. Yes, sir; I do.

Q. What interest has the estate in Minnesota?

A. The same they have here.

1054 In the Circuit Court of the United States for the Northern District of Illinois. In Chancery.

JOHN J. SCHILLINGER *et al.*, Complainant-,

vs.

J. B. HURLBUT, Defendant.

Testimony taken before Henry W. Bishop, master in chancery of said court, Thursday, the 3rd day of July, A. D. 1884.

Present: Mr. Banning, for complainant-; Mr. Bond, for defendant.

PHILLIP WADSWORTH, a witness on behalf of the complainant, being first duly sworn, was examined in chief by Mr. —— and deposes and says as follows:

Q. Please state your name, age, residence, and occupation.

1055 A. Phillip Wadsworth; occupation, merchant.

Q. State whether you are acquainted with what is known as the Schillinger pavement.

A. I am.

Q. Did you ever see the Schillinger patent sued on in this case or read it?

A. Yes, sir.

Q. State whether you ever laid or was interested in any way in the laying of any pavement under this patent.

A. I have been interested in the laying, but more principally in selling the material for the laying. In rare instances I have

1056 been interested in the laying of it.

Q. State how far you were thus enabled to become acquainted with the Schillinger pavement and its characteristics and utility.

A. I think thoroughly by looking into the matter.

Q. State whether you ever granted any licenses to lay pavements under the Schillinger patent; and, if so, to whom?

A. By virtue of an authorized attorneyship from Mrs. Olive G. Saulsbury I *I* granted licenses to J. L. Fulton, of this city, and John Cavanagh, of Evanston, and I have an understanding as to two or three other parties.

Q. Who is Olive G. Saulsbury you have mentioned?

1057 A. She is the wife of Elmer G. Saulsbury, deceased, who originally had the patent granted to him by Schillinger by letters of administration from the probate court as the practical owner of the patent at this time.

Q. At what rate per square foot were these licenses that you have mentioned as having been granted to Fulton & Co.?

A. Five cents is what is asked, and the two licenses I issued have been five cents a square foot.

Q. Look at these two instruments in writing which I show you and state what they are.

1058 A. They are instruments granting licenses by Olive G. Saulsbury, executrix of Elmer Saulsbury, to Fulton and Company to make and use under Schillinger's patent, and the same to

John Cavanagh, and signed by the party of the first part and by me as attorney-in-fact for Mrs. Saulsbury.

Q. These are the two licenses you mentioned?

A. Yes, sir.

Q. Having been actually issued?

A. Yes, sir.

Q. These are the signatures of the respective parties?

A. Yes, sir; of the first part.

Q. By the party of the first part you mean Fulton & Co. and Cavanaugh?

A. Yes, sir.

Counsel for complainant offers the two licenses in evidence
1059 which are marked, respectively, "Fulton license" and "Cavanagh license."

Q. Look at these licenses which has been heretofore offered in evidence and state what you know, if anything, about it and about any money having been paid under that license.

A. This is the original agreement; there has been money paid on this.

Q. How much has been paid on it?

A. About $4,000.

Q. I mean on this particular clause of the license which provides that five cents a square foot shall be paid and payment made
1060 on at least twenty-five thousand square feet per year, leaving out of view any money that was paid for the State of Illinois absolutely. State what you know has been paid, if anything, under that clause of the Saulsbury license.

A. I think there has been $750 paid.

Q. State why at least $1,250 a year has not been paid under that, if you know.

A. I think it has been on account of the fact that the license has been in controversy and his payments have been withheld.

Q. What controversy do you have reference to?

A. The patent, at the time we became interested in it, was
1061 supposed to be al- right, but it has been controverted by Hurlbut.

Q. Do you mean in the litigation in this case?

A. Yes, sir. In other words, if the patent had been uncontroverted we could have acted under it.

Q. Payments would all then have been made?

A. We should consider it binding.

Q. In accordance with its terms?

A. Yes, sir.

Cross-examination by Mr. BOND:

Q. To what extent are you interested in the Schillinger patent?

A. One-third.

Q. You are the owner of one-third?

1062 A. Yes, sir—that is, for the States in controversy; one-third of Illinois and one-third of Minnesota, but not one-third all

over the United States. Perhaps it would be better to say one-fourth, because I have taken Mrs. Saulsbury'- interest—one-third or one-fourth.

Q. That is, in addition to your representing the Saulsbury estate as agent or attorney?

A. Yes, sir.

Q. Did not Mr. Fulton, for himself or for himself and company, commute his license for a gross sum?

A. No; not that I know of.

Q. Did he not pay or get his license on an agreement to pay $1,000?

1063 A. No, sir; that was talked of, but he backed out of it.

Q. Did Cavanagh get his license for a gross sum?

A. No, sir.

Q. Neither of them have been commuted for any definite sum?

A. No, sir. Mr. Fulton—I was in negotiation with him for buying an interest in the matter, and I offered it to him for a $1,000, and he did not do it; and hence he has taken the license for five cents a foot. He could have done so at one time.

Q. You say you are familiar with the Schillinger pavement and patent. What do you understand to be the peculiarities of

1064 the Schillinger pavement covered by the patent?

A. As I said, I am not a practical layer; I merely sell the material; but I understand it to be to make a joint in the pavement, no matter how the joint may be made; but a joint that shall prevent cracking, whether it be made of paper or any other material or by air—made by cutting a trowel joint through to give an exposure and make a joint, so as to make seperate stone, like laying one natural stone up against another.

Q. So either one can be lifted?

A. So either one can be lifted and seperated from the rest.

1065 The joint may not be perfectly seperate, but sufficient of a joint to prevent the action of frost and heaving. The joint may not be perfectly straight so it might be lifted one stone with another. As stone are not always straight in their joints, a system of making cement concrete so when it sets it forms a joint just like stone joints.

Q. How long have you resided in Chicago?

A. Thirty-two years.

Q. How long have you known of the practice of making stone walks equal in length to the width of the walk—natural stone?

A. I should think about fourteen or fifteen years. Some of

1066 the first ones were in 1869, I think here; a few *g*lag stones.

Q. Were not some of them laid earlier than that?

A. I don't remember of any prior to that. The first I remember was on South Water street.

Q. Do you remember Reed's drug store, on Lake street?

A. Yes, sir; that was in 1860; I remember that. There was a flag stone laid there called the Republican platform.

Q. Considerably earlier than 1869?

A. Yes, sir.

Q. Has it not been the practice with these stone flag pavements to caulk them, so as to make the space underneath water-tight?

1067 A. Yes, sir; where they are over an excavated area. It is almost impracticable to lay a cement walk over an excavated area. Still it can be done.

Q. Can be done by arching it?

A. Yes, sir.

Q. In your business you import or deal in Portland cement, do you not?

A. Yes, sir.

Q. How long is it since you commenced importing or dealing in imported cement?

A. 1870—fourteen years ago.

Redirect examination:

Q. State whether Fulton & Co. and Cavanagh are laying the pavement under these licenses.

A. Yes, sir; actively.

1068 Q. And have they made pavements at the rate specified—at five cents per square foot?

A. Yes, sir.

Q. You have spoken about once offering to sell Fulton an interest in the patent for $1,000; when was that?

A. Prior to the trial before Judge Bloodget.

Q. Before the decision in this case and while the litigation was pending?

A. Yes, sir. Prior to the trial I told Fulton, in behalf of those associated with me, if he wanted to come in for a thousand dollars we would do it.

1069 Q. State whether or not his declining to purchase at that price was affected in any way by the pendency of the litigation, if you know.

A. I can't tell, but I think it was. I think it was owing to his confidence in the success of the defense.

1070 In the Circuit Court of the United States for Northern District of Illinois. In Chancery.

JNO. J. SCHILLINGER *et al.*, Complainants,

vs.

J. B. HURLBUT, Defendant.

Testimony taken before Henry W. Bishop, master in chancery of said court, Thursday, the 3 day of July, A. D. 1884.

Present: Mr. Banning, for complainants; Mr. Bond, for defendant.

GEO. W. HEY, a witness on behalf of the complainant-, being first

duly sworn, was examined in chief by Mr. —— and deposes and says as follows:

Int. 1. Please state your name, age, residence, and occupation.

1071 A. Geo. W. Hey; patent lawyer; residence, Syracuse, New York.

Q. State whether you know the patent sued on in this case and whether you have ever had anything to do with such a patent.

A. I do; I have been engaged in litigating it since 1879.

Q. State whether or not during that time you have had opportunities of becoming familiar with the pavement described in the claim in that patent.

A. I have. I have frequently seen it constructed in many cities of the United States.

1072 Q. State what knowledge you have had, if any, as to the manner in which the patentee or territorial owners under that patent have exercised their franchise and what they have been paid, if you know.

A. The patentee has been actively engaged in working under this patent in New York, Washington, Philadelphia, and many other cities, and also in selling territorial rights and licensing various parties to construct work under the patent.

Q. State whether you know of your own knowledge of the granting of any such license, either by the patentee or territorial owner.

1073 A. I do; I know of the granting of the license to Saulsbury, and I have also granted licenses as attorney-in-fact for Mr. Schillinger.

Q. Were you personally acquainted with or did you personally participate in the granting of the license to Saulsbury?

A. I have participated in some of the business connected with the license and transacted it with Mr. Saulsbury; the license itself I did not grant.

Q. The license from Saulbury which has been introduced in evidence and marked "Saulsbury license" provides in one of its

1074 clauses for the payment of five cents per square foot of pavement laid and for the payment of the same on at least 25,000 square feet of pavement for a year. State whether you know of any payment of money under that provision of the license.

Ans. I do.

Q. How much has been paid?

A. My firm has been paid on behalf of Mr. Schillinger $750 on account; the payment was made to me.

Q. On account of the license fee provided for in the contract?

A. Yes, sir.

Q. State, if you know, why further sums were not paid in

1075 accordance with the provision of the contract of August 26, 1882.

A. The contract was not carried out literally for the reason that a suit was instituted against the defendant here, Mr. Hurlbut, and

the parties claimed that Mr. Hurlbut's competition was so strong and that he was representing that patent as void and advising any party who had any work to do that he would take care of them, and they desired to suspend the clause requiring the payment of the annual guarantee pending the suit.

Q. And was this suspension made?

A. It was.

1076 Q. That, I understand you, was on account of the pendency of the litigation in this case and at this city?

A. Yes, sir.

Q. State what other licenses were granted for the laying of pavement under the Schillinger patent at the rate of five cents per square foot of which you have any personal knowledge.

A. There was a license at Milwaukee to a party named Bond. I understand it was a verbal license. I acquired knowledge of it in the summer of 1881, and Mr. Bond paid royalty to my firm on about 8,000 feet.

Q. During the year 1881?

1077 A. During the latter part of 1881 and the summer or latter part of 1882.

Q. You say Mr. Bond paid at the rate of five cents a square foot?

A. Yes, sir.

Q. State whether these payments were made as the work was done or whether the agreement to pay that rate was before the work was done, if you know.

A. I was informed by some of the parties for whom the work was done that the agreement was made before, but some of the work was done after Mr. Bond agreed with me to pay the license fees.

1078 Q. That is, after you became personally cognizant of the license, he still went on doing work on his agreement to pay at that rate?

A. Yes, sir.

Q. And the payments were made as you have stated?

A. Yes, sir; the payments were not all made at once.

Q. As the work progressed?

A. That is the way I took it. They were sent on three seperate occasions; about 8,000 feet altogether.

Q. State what other license was granted, of which you have any personal knowledge, at this same rate of five cents a square foot, and where and when.

1079 A. At Syracuse, New York, during the summer of 1883, to F. B. Klock, and at Syracuse during last summer to Peter Burns.

Q. State whether these parties proceeded under these licenses to lay pavement.

A. Both of them have laid considerable pavement and are laying now. We have not settled up the work yet. I think one amount of six or seven thousand feet has been accounted for.

Q. They are operating under the license?

A. Yes, sir; and I also licensed Mr. James Moore, of the firm of Moore and Hoffman, of Syracuse, at five cents a foot; they

1080 have accounted for 7,000 feet; also licensed E. P. Wagner, a contractor at Syracuse, at five cents a foot; he has done some work, but has not accounted for it; the license was made late last fall and he commenced this spring under it. I also know of the license to the Rochester Freer Stone Company of Rochester, New York; they were licensed at five cents a foot and failed to pay the royalty in consequence of the insolvency of the company, and I acquired my knowledge through correspondence with them, which led to the sale outright to — of a- account in New York to a
1081 gentleman who was an officer of the Freer Stone Company. I negotiated with parties in Oswego, New York; Goshen, Indiana, and South Bend, Indiana, for licenses at the rate of five cents a square foot, and have negotiations now pending — James Grant, of Goshen, Indiana, for a license in —— county.

Q. These negotiations that you have mentioned—what became of them that were not consum-ated in the issue of licenses?

A. I cannot say as to all of them. Some of them are still pending.

1082 Q. I wanted to know whether they had fallen through or ceased because the parties regarded the license asked as too large.

A. Only in one instance, to my knowledge, and in that instance the parties stated they preferred to pay a lump sum for county rights.

Q. State, if you know, how far the value or the utility of concrete pavements depends on the employment of the Schillinger invention described and claimed in the patent sued on.

A. I do know for the reason that I have been familiar with concrete pavement since 1871, and with concrete work generally
1083 since 1886, and had practical experience between those dates in cement work. I had personal knowledge of and saw the experiments made by Mr. Bassett at his works in Syracuse before he obtained his patent for cement walks, and my attention has been called to several attempts to lay cement walks without attempting to make a separation between the blocks. In all such cases the work has ended in a failure absolute; the walks cracked irregularly, and I have seen such walks in San Francisco, Sacramento, Washington, New York, and Syracuse. I believe it to be impossi-
1084 ble to make a successful block cement pavement without in some manner making an artificial separation between the blocks; and I understand that the Schillinger invention consists wholly in such separation of the blocks. I had a conversation with an officer of the Artificial Stone Paving Company at San Francisco in the summer of 1880, and with Mr. Wheaton, attorney for the company. We examined some pavement which was charged to infringe the Schillinger patent.

Mr. BOND: All this is objected to as being secondary evidence and incompetent.

1085 A. That the Artificial Stone Paving Company had paid $10,000 for the States of California and Nevada, and were to

pay a license fee of two cents a square foot additional for all they should lay, and George Schillinger, who made the agreement with the Artificial Stone Paving Company afterwards, made the same statement to me.

Q. The Artificial Stone Paving Company, with whose officers you were talking, was the licensee under this license; was that correct?

Objected to.

A. Yes, sir.

Cross-examination by Mr. BOND:

1086 Q. The California transactions were in writing, were they not?

A. I presume they were; I don't know.

Q. Do you not know that a number of licenses had been granted by Schillinger or the owners of the patents for a much less sum than five cents a square foot?

A. Only in cases where a lump sum was paid for the territory and a reservation made of two cents a square foot in addition, as in the California case.

Q. Has not Schillinger made a license as low as one cent a square foot without any gross sum being paid?

A. Not to my knowledge.

1087 Q. Those pavements which you say cracked irregularly, were they laid in sections or not?

A. Some of them were laid in sections and some were not. I saw one in New York last summer that was not laid in sections.

Q. Was it cement or asphalt?

A. Cement.

Q. Why did these which were laid in sections crack irregularly?

A. Because there was no attempt made to separate the sections.

Q. Do you know what tools, implements, or devices were used in these constructions?

A. I do.

1088 Q. Please state what they were and how they were laid.

A. The foundation is graded and strips of scantling laid on the outer and inner boundaries of the walk and a cross-strip put in at a distance equal to the width of the section from the end. The concrete or cement was mixed up and spread into the mould and trowelled off after that having been levelled. The scantling extending across one edge of the block was removed, set out about a distance equal to the length of the block already formed, and another block formed right up against it.

1089 Q. Do you understand that a pavement constructed in that manner is a Schillinger pavement?

A. Not one constructed exactly like that.

Q. What is necessary to convert such a pavement into a Schillinger pavement?

A. If the foundation course of cement or concrete is compacted and pains taken to build up the edge next to the scantling so as to make the blocks non-adhesive except in the upper course, and then

a tendency given to the upper course to part on a stright line in any manner whatever by cutting or inserting some foreign
1090 substance between the blocks, either temporarily or permanently, then such pavement becomes a Schillinger pavement.

Q. Is there anything in the Schillinger patent about more than one course of concrete or cement?

A. No, sir; excepting this: that he states the proportion of the several ingredients may be varied.

Q. Do you understand that the ability to lift the blocks separately after they are formed and seasoned has anything to do with the Schillinger invention?

A. I understand that it is one of the effects which accrues
1091 from following the invention; probably not the most material one.

Q. Which do you think is the most material one?

A. I agree with Mr. Justice Blatchford in——

Q. Never mind Mr. Blatchford; what is your opinion?

A. In giving the most importance to the controlling of the cracking. I think that is the prominent feature of the invention.

Q. Is there anything about controlling the cracking in the patent?

A. I think there is.

Q. What is it?

A. I have not a copy of the patent here; if I had I would
1092 call your attention to the particular language.

Q. How does it come that these royalties or licenses have been paid to your firm?

A. My firm has acted under a regular power of attorney since 1880, and payments have been made to us instead of Mr. Schillinger direct, for the reason that we have personally transacted the business and were wholly cognizant of the transaction; furthermore, Mr. Schillinger has been and is engaged in New York city, while either myself or some other member of the firm has been on the ground where the business was transacted.

1093 Q. Have you or your firm any interest in the patent?

A. No vested interest by deed or assignment, nor interest beyond our employment as attorneys.

Q. How are you paid as attorneys?

A. We have been paid sometimes by a *per diem* and at other times we have received a portion of the license fees—the amount of moneys derived from the sale of territory.

Q. You are to have a portion of the amount recovered in this suit, are you not?

A. We are to have a *per diem.*

1094 Q. And a percentage also, are you not?

A. No, sir; we are to have a *per diem* or an amount equal to the *per diem*; furthermore, this suit is in the interest of the licensees here and under an arrangement between the licensee and the licensor to divide the expenses. We have already been paid between twelve and fifteen hundred dollars in this suit for legal services besides the disbursements.

Q. You have a contract, have you not, by which your compensation is to correspond to some extent with your success in the matter and of the amount of the money derived from the patent?

A. Not in this case.

1095 Q. You are the same Geo. W. Hey who acted in the prosecution of this case as attorney, are you?

A. Yes, sir.

1096 In the Circuit Court of the United States for the Northern District of Illinois. In Chancery.

JOHN J. SCHILLINGER *et al.*, Complainants,
vs.
J. B. HURLBUT, Defendant.

Testimony taken before Henry W. Bishop, master in chancery of said court, Thursday, the 3- day of July, A. D. 1884.

Present: Mr. Banning, for complainant-; Mr. Bond, for defendant.

GEO. W. HEY, a witness on behalf of the —, being first duly sworn, was cross-examined in chief by Mr. —— and deposes and says as follows:

Int. 1. Please state your name, age, residence, and occupation.

A. July 3rd, 1884.

1097 Cross-examination of GEORGE W. HEY continued:

The WITNESS: I find in the reissued specification the following language referring to the cracking and breaking: "The paper constitutes a tight water-proof joint, but it allows the several blocks to heave separately from the effects of frost or to be raised or removed separately, whenever occasion may arise, without injury to the adjacent blocks." I think this language covers the subject-matter of inquiry.

Q. What value would you attribute to this feature of the Schillinger pavement?

A. I think the entire value of the invention resides in this feature.

1098 Q. That is the ability of the blocks to rise and fall separately under the influence of frost or other things?

A. No; I referred to the feature controlling the cracking by the free joints or separation of the blocks.

Q. If there is a complete separation at the joints, how can there be any cracking of any kind along that line unless it be a crosswise cracking?

A. If the blocks are separated from top to bottom, then there could be no cracking along the line; but they do not usually separate them from top to bottom, because a partial separation is easy to make and effects the same result.

1099 Q. How can a partial separation make a free joint?

A. It makes a space in the upper course between the two

blocks, which gives a tendency to the connected portions of the top layer to separate on the line of the cut by weakening the material, and it is only a free joint to that extent; but as soon as the foundation settles or any other displacement occurs the joint becomes free clear through.

Q. Is not the Schillinger pavement a one-course pavement, as described in the patent?

A. I think not necessarily. He describes or gives a formula for mixing the composition, but he states that he does not con-
1100 fine himself to the formula given. I don't think that the patent may be properly said to be a one-course composition, because it is well known how to make a top dressing of the same material.

Q. You think it was well known at the date of the Schillinger original patent?

A. I have no doubt of it. Witnesses have testified that it was known as early as 1841 in some of the cases in which I have officiated as counsel.

Q. Does not the formula to which you have just referred as being in the Schillinger patent relate to the ingredients or composition itself and not to the manner of laying?

1101 A. Yes; the formula relates to the ingredients—the proportions of them.

Q. Does not the drawing show it as a complete single joint from top to bottom of the cement portion of the pavement?

A. I think it does.

1102 In the Circuit Court of the United States for the Northern District of Illinois. In Chancery.

JOHN J. SCHILLINGER *et al.*, Complainant-,

vs.

J. B. HURLBUT, Defendant.

Testimony taken before Henry W. Bishop, master in chancery of said court, Thursday, the 3rd day of July, A. D. 1884.

Present: Mr. Banning, for compl't; Mr. Bond, for def't.

J. B. HURLBUT, a witness on behalf of the —, being first duly sworn, was examined in chief by Mr. —— and deposes and says as follows:

Int. Please state your name, age, residence, and occupation.

1103 A. J. B. Hurlbut; occupation, cement paving.

Q. You are the defendant in this case, are you?

A. Yes, sir.

Q. I call your attention to a statement furnished by you purporting to show the concrete flag pavement made by J. B. Hurlbut and the corporation of which he is president, from August 26, 1882, to May 20, 1884, the joints of which were worked during the process of formation. This statement is sworn to by you on the 23d day of

May, 1884. State whether it is a complete statement of all the work so done during the time which it purports to cover.

A. I believed it was at the time. I went over the books
1104 twice and supposed I had all that related to that sidewalk. I find some little work done I had overlooked in the former statement, so I corrected the statement as near as I could make it.

Q. Is that correction contained in this other paper which you have now produced?

A. Yes.

Q. I find in neither one of these statements the street or number of the street where the work was done. Can you furnish us with that information?

A. I think so.

Q. Have you got it with you?

A. No, sir.

Q. In laying the pavement included in this statement and
1105 addenda thereto how much did you, on an average, charge per square foot?

A. The price is mainly twenty cents, I believe, in that work.

Q. That would be about an average price—twenty cents a square foot?

A. There is some little done for less—at seventeen cents, and some little at twenty-two, perhaps.

Q. So that twenty cents would probably be a fair average for the work done?

A. Yes.

Q. In laying pavement at an average of twenty cents per square foot how much of that was net profit?

A. From fifteen to twenty per cent.

1106 Q. From 15 to 20 per cent. would be the net profit?

A. Yes.

Q. Which one of these figures would most nearly represent the net profit per square foot?

A. Which one of these do you mean?

Q. You said 15 or 20 per cent. would be the net profit. Now, which one of those two figures would in the majority of cases, in your opinion, represent the net profit?

A. Well, I should judge 20 per cent. would represent the most, probably two-thirds, of the cases.

Q. Now, as I understand, that would represent the profit after deducting all expenses and things of that kind?

1107 A. All expenses of the work, but not allowing anything for superintending, my time, or living expenses.

Q. But it would represent the net profit after deducting the cost of the material and the expense of doing the work. Is that what I am to understand?

A. Yes.

Q. Did you do your own superintending?

A. Myself and my assistant.

Q. Who was your assistant superintendent?

A. Mr. Knowlton.

Q. Were you both superintending at the same time?

1108 A. Perhaps not the same job; the same piece of work.

Q. Do you mean to say that this amount which you have given as the net profit is not the net profit after deducting Mr. Knowlton'- wages?

A. This is the net profit on materials and workmen; 15 or 20 per cent. of the net profit on workmen, material, and labor all through.

Q. Does not that include Mr. Knowlton's wages?

A. No, sir.

Q. How much did you pay him per day?

A. Well, he has not worked by the day; he has lived with us; he has perhaps $40 a month and board.

1109 Q. You paid him in the neighborhood of $40 a month?

A. Paid him $40 a month and board.

Q. What did you charge him for board?

A. $30 a month. We furnished the board and $40 a month; equal to about $70.

Q. From the 20th of August, 1882, to the 20th of May, 1884?

A. Yes.

Q. What months of the year did you lay pavements?

A. Well, April to November.

Q. That is including those months?

A. Yes.

Q. Did you lay or could you lay constantly during April or during November?

1110 A. No, sir.

Q. The weather would not permit?

A. No; very little done in those month-.

Q. Very little was done in these months?

A. Yes.

Q. But the other months the weather would permit the laying of pavement without serious intermission?

A. Yes.

Counsel for complainants offers the statements produced by the witness and referred to in his deposition above in evidence, and the same are marked "Defendant's Statements."

1111 The statements produced by the witness Hurlbut, marked "Defendant's Statements," in words and figures as follows, to wit:

1112 Statement of all concrete flag pavement made by J. B. Hurlbut and the corporation of which he is president from August 26th, 1882, to May 20th, 1884, the joints of which were marked during the process of formation.

Date.	Names.	No. feet.	Am't rec'd.
1882.			
Oct. 5	Jno. Dupee, Jr.	123	36 90
" 21	W. S. Hall	1,108	277 00
" 24	J. H. McArthur	332	83 00
" "	Mr. Haskell	261	66 75
1883.			
May 30	H. V. Dennis	1,200	204 00
Nov. 15	U. P. Smith	23,100	4,620 00
April 23	Jos. Darrell	193	48 25
" "	Mr. Otis	125	25 00
" "	Mrs. A. Struger	428	107 00
" 28	Jerome Beecher	1,325	268 00
June 15	Z. S. Holbrook	1,900	380 00
May 31	A. C. Cady	441	88 20
" 14	G. MacDonald	1,884	366 15
" 15	Geo. Miller	881	176 20
" 29	H. Oppenheimer	250	60 00
" 26	D. C. Newton	911	218 64
June 23	J. J. Luther	300	60 00
" "	L. C. Pardee	327	65 40
" "	J. W. Hobson	546	105 80
May 23	W. C. Egan	300	60 00
" "	G. M. High	389	81 69
Sept. 25	B. P. Moulton	401	80 20
May 31	M. Reese, hospital	1,053	210 60
" 17	T. H. Keep	202	40 00
June 4	J. E. Day	154	34 65
" 12	A. Vaughn	305	61 44
" 20	Robbin's estate	1,217	267 75
Sept. 30	Groveland park	3,500	699 71
June 29	1113 J. Wolfenstetter	145	32 62
July 18	J. P. Black	144	28 80
Aug. 11	28th St. bet. State & Wabash	4,435	887 00
July 28	Jno. Legward	736	147 20
Oct. 20	Mrs. A. Halsted	813	162 60
July 31	O. S. Johnson	280	56 00
Aug. 16	J. C. McComb	206	41 20
" 21	J. H. Kedzie	544	109 40
Sept. 1	Z. S. Holbrook	1,850	388 75

Date.	Names.	No. feet.	Am't rec'd.
1883.			
Aug. 22	Jerome Beecher	106	21 20
Oct. 15	E. Rose	228	45 60
June 1	Mrs. Moore	57	11 40
Sept. 13	G. A. Seaverns	417	83 40
Oct. 9	J. L. Pierson	303	42 62
" "	H. A. Pearson	1,402	257 98
" "	A. N. Young	1,278	179 72
" "	N. C. Gridley	686	96 47
" 11	Jerome Beecher	1,015	203 00
" 26	Wm. Grote	825	165 00
" 20	Briggs & Warren	240	48 00
Nov. 1	C. J. Hull	605	121 00
1884.			
April 5	U. P. Smith	1,400	280 00
" 26	Training school	1,625	325 00
" 22	W. F. Johnson	517	116 32
" 19	P. L. Underwood	256	51 20
May 3	Jas. Parker	1,500	300 00
April 21	C. C. Cheney	270	54 00
" 28	C. Busby	350	70 00
May 6	J. L. Thompson	443	88 60
" 1	D. F. Bacon	150	30 00
" 9	J. Weil	450	90 00
March 28	C. F. Brown	300	60 00
May 2	F. S. Waters	457	91 40

1114 The books do not show and I have no means of ascertaining the exact cost of the separate pieces of work or the exact cost of the entire work. The entire profit on the whole work, including profit on material and labor, has been from fifteen (15) to twenty (20) per cent. of the entire sum received, as nearly as I can estimate the same from a careful examination of the books.

J. B. HURLBUT.

Subscribed and sworn to before me this 23rd day of May, A. D. 1884.

[NOTARIAL SEAL.]

O. W. BOND,
Notary Public.

1115 *Defendant's Statement.*

Statement of work that was overlooked in first estimate, being laid in connection with other work where no marking was done.

Date.	Names.	No. feet.	Amount rec'd.
1883.			
Sept. 1	Bemis & McAvoy Br'g Co.	1,900	316 00
Oct. 10	C. P. Kimball	460	92 00
Sept. 25	S. A. Kent	240	48 00
June 20	M. Cudahy	200	40 00
Oct. 27	E. Carter	270	54 00
1884.			
April 29	N. B. Ream	650	130 00

J. B. HURLBUT.

Endorsed: Filed Oct. 10, 1884. Wm. H. Bradley, clerk.

1116 And the defendant, to maintain the issues on his part, offered and put in evidence before the master and used in the hearing, as follows:

Depositions of August Witt, James I. Winans, U. P. Smith, H. C. Hutchinson, William Reed, Asahel C. Blodgett, John Cavanaugh, George A. Farnum, and E. G. West, in words and figures as follows, to wit:

1117 In the Circuit Court of the United States for the Northern District of Illinois. In Chancery.

SCHILLINGER, Complainant, *vs.* HURLBUT, Defendan-.

Testimony taken before Henry W. Bishop, master in chancery of said court, —day, the 17 day of July, A. D. 1884.

Present: Mr. Bond, for defendant; Mr. Hey & Mr. Banning, for compl't.

AUGUST WITT, a witness on behalf of the defendant, being first duly sworn, was examined in chief by Mr. BOND and deposes and says as follows:

Int. 1. Please state your name, age, residence, and occupation.

1118 A. August Witt; age, 48; residence, Chicago; occupation, cement working.

Q. How long have you been engaged in the business of cement working?

A. Since 1870.

Q. For whom and with whom?

A. The firm of Jenkins and Selby, and when I left them I went to work for Hurlbut.

Q. Are you with him yet?

A. Yes, sir.

Q. What kind of pavement are Jenkins & Selby laying?

A. Diamond work at that time, using tar paper and joints.

Q. Were they working under any patent?

A. Yes, sir.

1119 Q. What patent?

A. A Schillinger's patent.

Q. State whether the pavement or sidewalk with tar paper and joints was satisfactory.

A. It was at that time; but after, when they don't put any paper in, it is better.

Q. Is there any difficulty in the use of tar paper? If so, state what it was.

A. Tar paper only makes more work and don't make a good stone because it is open and breaks on the corners.

Q. Did the tar paper make the pavement water-tight?

A. No, sir; not that way—to put them in the joints—because tar paper will rot out in a short time; the cement eats it up

1120 and the weather, and after a year you take the stone up and there would be none seen, hardly.

Q. What was the effect of tar paper in joints as to the freedom with which blocks could be taken up or removed?

A. The tar paper kept it kind of loose in the joints; and still, when the stone was set, you could not take it up without breaking.

Q. How did it work in the settling of pavement under the action of frost in the winter or spring?

A. It would get more uneven, because it has more chance to go up and down when the paper breaks up between it.

1121 Q. What would you think a license for making sidewalks, either flags or diamond work with tar paper in the joints, would be worth if you had to put the tar paper in?

Objected to as incompetent.

A. Would not be worth anything now, because they would not have it now at all. Now they know better; they would not have it.

Q. How long have you been in Chicago?

A. Since 1866.

Q. How long have you known of their laying flag pavement in Chicago where the flags in length are equal to the width of the walk?

Objected to as immaterial.

1122 A. There was some laid when I came here.

Q. Has the flagging with the natural stone been kept since?

A. Yes, sir.

Q. Do you know how they made this kind of natural flagging water-tight?
A. They caulked it with oakum.
Q. That is in the joints?
A. In the joints.
Q. You have known of that practice here since 1866?
A. Yes, sir.

Cross-examination by Mr. HEY:

Q. In cement or concrete flags or diamond blocks your idea
1123 is that where no tar paper is used in the joints it makes just as good a pavement?
A. Better. It makes it better to make a close joint—it is a better joint.
Q. That is, where there is no paper in?
A. Yes, sir.
Q. Simply the joint-work?
A. The joint will always come wherever you put a piece of scantling, no matter where you put it.

Signature waived.

1124 & 1125 In the Circuit Court of the United States for the Northern District of Illinois. In Chancery.

SCHILLINGER, Complainant, *vs.* HURLBURT, Defendant.

Testimony taken before Henry W. Bishop, master in chancery of said court, —day, 17th day of July, A. D. 1884.

Present: Mess. Hey and Banning, for comp't; Mr. Bond, —.

JAMES I. WINANS, a witness on behalf of the defendant, being first duly sworn, was examined in chief by Mr. BOND and deposes and says as follows:

Int. 1. Please state your name, age, residence, and occupation.
1126 A. James I. Winans; residence, 4805 State St., Chicago; age, 32 years; occupation at the present time, carpenter work and partly in the store; about half of my time in my store.
Q. Have you had any experience in cement-work, and particularly in the laying of sidewalks or pavement?
A. Yes, sir.
Q. When and where?
A. I commenced the cement-work in the fall of 1870, at Indianapolis, Indiana, and continued the same throughout the State at different places, up to two years this coming August.
1127 Q. Are you laying under any patent or under a license under any patent?
A. Yes, sir.
Q. What patent?
A. I laid under the John J. Schillinger patent.

Q. What royalty were you to pay under your license?

A. 2½ cents a square foot—that is, my first license.

Q. Have you had more than one license; and, if so, from whom did you obtain them?

A. When I first bought out the works of John W. Dood & Co., of Logansport, Indiana, I held a license from Dodd & Co. to lay the Schillinger pavement. After I laid a year or so I went to New York and got a license for five counties from John J.
1128 Schillinger himself, and I took the license from him at 2½ cents a square foot.

Q. Did you lay any pavements with tar paper in the joints?

A. I did for six years.

Q. Did you lay any where the tar paper was omitted?

A. Yes, sir.

Q. Which method produced the best pavement?

A. The tight joint produced the best satisfaction.

Q. What difficulties, if any, were there in the use of tar paper, so far as the pavement itself was concerned?

A. In the spring time or during the winter the frost would
1129 heave it more or less, and *and* in settling in the spring the joint was left open and the gravel would get in and hold one stone above the other.

Q. In what condition did that leave the pavement?

A. In a kind of rough condition; leave one stone above the other.

Q. About how long would tar paper hold its integrity or firmness?

A. I am not able to say as to that. We laid pavement, and in couple of years after we laid it the paper was all rotted pretty near out. How long it will last I could not answer.

Q. So far as you relaid, it was rotten in two years?

A. Yes, sir.

1130 Q. What would you be willing to give for a license for making the Schillinger pavement if you were now in business and be required to keep tar paper in the joint, or something of that character?

A. I would not take a license, not at the present time, because I could not get any work to do.

Signature wa-ved.

1131 In the Circuit Court of the United States for the Northern District of Illinois. In Chancery.

SCHILLINGER, Complainant, *vs.* HURLBURT, Defendant.

Testimony taken before Henry W. Bishop, master in chancery in said court, Thursday, the 17 day of July, A. D. 1884.

Present: Mr. Hey and Mr. Banning, for compl't; Mr. Bond, for def't.

U. P. SMITH, a witness on behalf of the defendant, being first duly

sworn, was examined in chief by Mr. BOND and deposes and says as follows:

Int. 1. Please state your name, age, residence, and occupation.
1132 A. U. P. Smith; lawyer by profession; residence, in Chicago; I am engaged in building largely now.

Q. In your building operations have you at any time had occasion to have concrete or cement sidewalks or pavements laid?

A. I have had a good many sidewalks laid of that kind.

Q. Please state whether or not some time ago you examined the different kinds in reference to determining which one to select.

A. A. Some seven or eight years ago I examined the different walks that were being laid to determine what kind I would
1133 lay in an improvement I was making at that time in Aldine Square.

Q. Have you examined any pavements which had strips of tar paper or other kind of paper in the joints? If so, state what your conclusion as to that class of cement pavement was.

A. I went on the West Side and examined some walks of that description, some in different places, some laid with paper between and I examined some laid without anything between at all, with a view of determining what character of pavement I preferred, and after looking them all over I came to a decided conclusion as to the kind I desired laid in the square. After examining the dif-
1134 ferent kinds I concluded that I wanted the sidewalk in the square laid with nothing but tight joints, and had them so laid.

Q. From the action of the pavement in Aldine Square and other cement pavements, if you have examined them, which, in your opinion, would make a better pavement, the tight joint or the joint with tar paper interposed?

A. My opinion is very strongly in favor of a walk without anything between the joints, after testing it as well as it was at that time, and since that time I have had a large quantity of this walk laid to a great number of buildings; am having it laid now this
1135 season and had it last season. All my work ever since that examination has been laid with tight joints. I objected to the other as leaving an open space between the blocks for the water and frost to get in, and in my opinion neither looked as well nor did I believe it would last as well.

Q. From your knowledge and experience in the use of these pavements would you consider the interposition of a strip of tar paper an improvement or an injury?

A. I should consider it a detriment to the walk.

Cross-examination by Mr. HEY:

Q. Are you the U. P. Smith for whom Mr. J. B. Hurlbut constructed some cement pavement last spring?

1136 A. Yes; he constructed some cement pavements for me last season; quite a number.

Q. Amounting in value to several thousand dollars?

A. Yes; I believe several thousand dollars' worth. I don't know just how much without looking.

Q. Please state briefly what differences you noted in examining cement pavements with paper between the joints and those without.

A. What differences I noticed? Well, the main difference is, in the beginning, one is laid with the paper put in between and left there and you are able to distinguish that there is something between the blocks—paper; it may be thick or it may be thin,
1137 but you can distinguish there is something, and if you look closely you will see that a small space between the flag is taken up with paper and that you could pick it out, and if it were out it would leave an open joint. That is what you will detect in the start when this is laid. After it has been laid for a length of time you will notice that there is an open space, because the paper to a greater or less extent will be gone, leaving a still greater space between the blocks of cement.

Q. In the other case, where no paper is used, do not the open spaces occur after the pavement is a year or two old, say, or some months old?

1138 A. There might be a very slight space here in places. I don't know of any reason why there should be any space of any size any more one year from the time it was laid or one week from the time it was laid. I don't think the space would be any greater, and the space would certainly be very much smaller if no paper was used.

Q. With the exception, then, of the space between the blocks, can you specify any other differences?

A. Nothing as a matter of fact. I could only give you my conclusion as to why there would be a difference in the walk or the lasting quality of the walk. It might not be correct. It would
1139 be a mere conclusion. I cannot state, in fact.

Q. No differences, in fact?

A. No differences, in fact, that are perceptible.

Redirect examination:

Q. The larger the space is between the blocks is there not more liability for the corners to be broken off to increase the gap in using?

A. That was the conclusion I came to and have always had in regard to it: If there is anything between, it leaves an open space and the corners are liable to be broken off, and the water and ice collect in there and frost and crack it. That was the idea I
1140 had. Whether that operates so as a matter of fact I do not know, but that was my main reason for desiring close joints in the start, and I have always laid them in that way.

Signature waived.

Adjourned until 10 o'clock p. m., July 18, on the part of complainants and defendants.

1141 In the Circuit Court of the United States for the Northern District of Illinois. In Chancery.

SCHILLINGER, Complainant, *vs.* HURLBUT, Defendant.

Testimony taken before Henry W. Bishop, master in chancery of said court —day, the 16 day of July, A. D. 1884.

Present: Mr. Banning, of Banning & Banning, & Mr. G. W. Hey, for complainants, and Mr. Bond, of West & Bond, for defendants.

H. C. HUTCHINSON, a witness on behalf of the defendant, being first duly sworn, was examined in chief by Mr. BOND and deposes and says as follows:

Int. 1. Please state what is your name, age, residence, and occupation.

1142 A. Henry C. Hutchinson; age, 59 years; residence, Waukegan, Lake county, Illinois; occupation, merchant.

Q. Have you, since August, 1882, been connected with the city government or administration of Waukegan?

A. Yes; as alderman of the second ward.

Q. Do you know of any flag pavement being laid in the city of Waukegan which was made of cement or concrete?

A. Yes.

Q. State, if you know, whether it was laid or claimed to be laid under *what* patent. If so, what patent?

A. The Schillinger patent.

1143 Q. State what royalty was paid by the city for the use of the Schillinger patent per square foot—what rate was paid.

A. The sum paid by the city was 2½ cts. per square foot, which we understood to be the royalty.

Q. To whom was this paid?

A. Watson & Perkins, the men who laid the walk.

Q. What position did Watson & Perkins claim to hold in reference to the Schillinger patent?

A. Watson & Perkins claimed to have the right to lay the walk from the Empire Warehouse Company. The way it was represented to us was that the Empire Warehouse Company had the ex-

1144 clusive disposal of a certain amount of territory, and we were in that territory.

Q. Do you know what parties own or control the Empire warehouse?

A. I do not. Mr. Wadsworth is the only man I had any correspondence or talk with in regard to it.

Q. Mr. Philip Wadsworth?

A. I think it was Philip; I would not be certain.

Cross-examination by Mr. BANNING:

Q. When was this pavement laid at Waukegan?

A. Last summer. I can tell you the months—during the months of August & September.

Q. 1883?

1145 A. 1883. Yes.

Q. How do you know that there was a royalty of 2½ cts. per square foot paid?

A. That was what Mr. Perkins claimed the royalty was and which we had got to pay.

Q. Who told you it was 2½ cents?

A. Mr. Perkins.

Q. Perkins had a conversation with you, then, did he?

A. He was the one we made the contract with.

Q. Who did you make the contract for?

A. On behalf of the city. I was one of the street and bridge
1146 committee, and through them and the counsel the trade was made, the city to perform its part.

Q. How much was paid by the city per square foot altogether?

A. Two and a half cts. a foot.

Q. For the whole job?

A. For that whole job.

Q. Then Perkins & Watson did not lay the pavement?

A. Oh, yes.

Q. Do you mean the 2½ cts. per foot covered all the pavement the city had to pay for?

A. Yes.

Q. Who furnished the materials?

A. The city, all except cement.

Q. Did Watson & Perkins furnish cement?

1147 A. Yes.

Q. That was included in the 2½ cts.?

A. Yes.

Q. They furnished the cement, and the royalty altogether was 2½ cts. per foot?

A. Oh, no; the trade was this: Watson & Perkins laid the walk. The city paid them two & a half cents a foot, which was to cover the royalty and furnish the sand and gravel on the ground, taking away the old plank walk, and any grading that there was to be done or any filling, and the citizens paid for the balance, which was ten cents a foot—that is, the city's part of the walk. The citizens'
1148 part was ten cents, and Watkins & Perkins furnished cement, lumber, and other material and done the work and completed it.

Q. For 12½ cts. altogether?

A. Altogether in money.

Q. Was there any other consideration?

A. Only that the city was to do the grading and furnish the sand and gravel on the ground for them.

Q. In addition to this 12½ cents they were to get from the citizens and city altogether?

A. Yes.

Q. How much pavement was laid?

1149 A. Well, now, I can't tell you all the pavement that was paid, except so far as the sidewalk was concerned. What was laid inside of the inclosures the parties themselves paid in full.

What was laid outside of the inclosures, in the street, the sidewalk, the city had to do with, and that amounted to 5,056 feet.

Q. Before giving this job to Perkins & Watson did the city authorities consult with anybody else about laying the pavement?

A. Yes.

Q. Who was that?

A. Mr. Philo J. Warner, Mr. Homer Cook, as to whether there was any patent on it or not, and whether we were obliged to
1150 pay this royalty. Mr. J. V. Forwell——

Q. I mean with other parties who were laying pavement.

A. Oh, yes; we had a talk with Hurlbut.

Q. Anybody else?

A. No, sir; we consulted our own workmen in Waukegan as to what it would cost to lay this work, how much they would lay it for, and we intended to lay it with our own men, but found that we could not do it. We had got to employ some one who would settle the royalty question, as we didn't want to get into any lawsuit about the patent in any respect, so we got Mr. Perkins. Mr.
1151 Philip Wadsworth sent him up in behalf of the Empire warehouse. He came up and brought up the decisions of the Supreme Court, and convinced us that there was a patent on it and that we were subject to a royalty, and stated what the royalty would be, and so we got Mr. Perkins to do the work.

Q. These various parties were competing for the job, but you finally concluded to give it to Perkins because of the patent papers which he appeared to have?

A. No; we didn't care who did the work, but he would do it cheaper than Hurlbut.

Q. He underbid Mr. Hurlbut?

A. Yes.

1152 Q. If he had charged more than 12½ cents per foot altogether he might have lost the job?

A. Well, I don't know about that. Mr. Hurlbut was the first man we talked with to do the work, and then the question of patent came up, and we wrote to the Empire Warehouse Company for cement, intending to do the work ourselves, and there we struck the royalty business, and Mr. Wadsworth wrote to me that he would come up and see us in regard — and instead of Mr. Perkins appeared.

Q. Then Perkins & Watson were competing with Mr. Hurlbut for the job?

A. Well, no; I don't know as you could say that, because
1153 we discarded Mr. Hurlbut as being too expensive and declined to have him at all. We had no further talk with Mr. Hurlbut except at that time.

Q. Well, you would have given the job to Hurlbut if Perkins & Watson had charged more for it?

A. No; I don't think we would have had it done at all.

Q. What did Mr. Hurlbut ask per foot?

A. I think it was 15 cents, if I recollect rightly.

Q. And you gave Perkins and Watson the job because they would do it for 12½ cents.

A. Yes.

Q. What did the parties at Waukegan ask per foot?

1154 A. They were to do it by the day, was what we contemplated doing at the time.

Q. Was this contract with Perkins & Watson in writing?

A. No, sir; I think not.

Q. Was the term royalty used in speaking of the two and a half cents?

A. Yes.

Q. Who used that term?

A. Mr. Perkins.

Mr. BOND:

Q. Have you the bill presented by Perkins & Watson? If so, produce it.

A. Yes.

Bill produced, offered in evidence by Mr. Bond, and marked "Defendant's Exhibit Hutchison."

Signature waived.

1155 In the Circuit Court of the United States for the Northern District of Illinois. In Chancery.

SCHILLINGER, Complainant, *vs.* HURLBUT, Defendant.

Testimony taken before Henry W. Bishop, master in chancery of said court, Wednesday, the 16 day of July, A. D. 1884.

Present: Mr. Banning, of Banning and Banning, and Mr. G. W. Hey, for complainants; Mr. Bond of West and Bond, for defendants.

W. M. REED, a witness on behalf of the defendants, being first duly sworn, was examined in chief by Mr. BOND and deposes and says as follows:

Int. 1. Please state your name, age, residence, & occupation.

1156 A. W. M. Reed; forty-eight years old; residence, at Waukegan; I am in the furniture and undertaking business there.

Q. Was you in any way connected with the city government of Waukegan in the year 1883?

A. Yes.

Q. In what capacity?

A. I represented the third ward in the board of alderman.

Q. Was you present when Mr. Hutchins testified in this case?

A. Yes.

Q. Please state what you know about the matter of the city paying royalty for work done in 1883 under the Schillinger

1157 patent.

A. Mr. Hutchinson had charged of this particular part of the city business, so far as this concrete walk was concerned, and was the man we depended on to look the matter up and make ar-

rangements for the walk—drew up the resolution before the counsel substantially as he has stated—so the counsel voted according to his recommendation to lay the walk and pay the royalty to somebody; I don't know whom; I don't remember who had that in charge. The bill is made out there, which was presented and paid by the counsel afterwards as the royalty on the walk that
1158 had been laid.

Q. By the bill you refer to you mean his "Exhibit Hutchinson?"

A. Yes; that is my name there, and Hutchinson, another member of the street and bridge committee.

Q. These names written in pencil at the bottom of the bill?

A. Yes; a bill passed by the board has to be signed by members of the committee.

Cross-examination by Mr. BANNING:

Q. You had no conversation personally with Mr. Perkins?

A. No, sir.

1159 Q. All that you know about it is what you learned in your official capacity in connection with the job?

A. Learned there was a contract of that kind made and the walk was laid.

Q. Who else was competing for the job?

A. I don't know; Mr. Hutchinson managed that altogether.

Signature waived.

1160 WEDNESDAY, *the* 16 *day of July, A. D.* 1884.

Present: Mr. Barnard & G. W. Hey, for complainants, and Mr. Bond, for def'ts.

ASAHEL C. BLODGETT, a witness on behalf of the defendant, being duly sworn, was examined in chief by Mr. BOND and deposes and says as follows:

Int. 1. Please state your name, age, residence, and occupation.

A. Asahel C. Blodgett; agent of the Chicago & Northwestern railway, at Waukegan; age, 52 years.

Q. Was you mayor of Waukegan in 1883?

A. I was; yes.

1161 Q. Was you present and did you hear the testimony of Mr. Henry C. Hutchinson?

A. Yes.

Q. Do you know about this pavement or walk which was laid in Waukegan under the Schillinger patent?

A. Yes.

Q. State if you know about this pavement or walk which was laid in Waukegan under the Schillinger patent.

A. Yes.

Q. State what you know about the royalty that was paid for the use of the Schillinger patent in laying that pavement.

A. We had considerable conversation with Mr. Hurlbut
1162 with regard to the walk and with the representative of the Empire Warehouse Company with regard to it, and Mr. Perkins came up and said that he represented the Empire Warehouse Company, and he informed us that there was a patent on the walk, and that Mr. Hurlbut was laying it without authority from the patentee, and that if we allowed him to lay it we were liable to get into trouble and we would have to pay a royalty on it. We investigated the matter through some attorneys and were convinced that was the case; then we asked Mr. Perkins to make us a bid for laying
1163 the walk, and he done so. In the first place we got the *modus operandi* of laying it and the kind of material that it took, and thought we could lay it ourselves and save money by it, but when we found there was a patent on it we thought we had better not undertake it; so we arranged with Perkins to do it, with the understanding that he was to protect us against any royalty.

Q. What royalty did he set up?

A. Two and a half cents a foot.

Cross-examination by Mr. BANNING:

Q. Mr. Hurlbut was figuring on this same job, was he not, before you saw Mr. Perkins?

1164 A. Well, he done a job in the city and we talked with him to do work for the city.

Q. He gave you his figures, did he?

A. He did.

Q. Did you have any conversation with Mr. Perkins?

A. I did; yes, sir.

Q. The property-owners, in addition to this 2½ cts., paid ten cents a square foot, did they?

A. Yes.

Q. Making twelve and a half cts. per foot?

A. Yes, and sand and gravel delivered on the ground to the——

Q. To the contractors?

A. Yes.

1165 Q. The city did the grading also, did it not?

A. That was the understanding, but there was no grading when we had the walks laid, of any account.

Q. None was required?

A. None was required.

Q. Where it was required it was the understanding that the city should do that?

A. I think it was.

Signature waived.

1166 WEDNESDAY, *the 16th day of July, A. D.* 1884.

Present: Mr. Banning & G. W. Hey; Mr. Bond.

JOHN CAVANAGH, a witness on behalf of the defendants, being first duly sworn, was examined in chief by Mr. BOND and deposes and says as follows:

Int. 1. Please state your name, age, residence, and occupation.

A. John Cavanagh; I am 41 years of age; live in South Evanston, Chicago.

Q. What business are you in?

1167 A. Well, I am learning laying water pipes, sewering—a good many different kind of business—cement-work of one kind and another.

Q. Have you a license for laying pavement under the Schillinger patent?

A. Yes.

Q. How much are you to pay under that license?

A. Well, I don't know as it is a license. I made a contract with Mr. Saulsbury to lay pavement. I laid some before that last year and laid some this year.

Q. Have you paid any royalty for either?

A. Yes.

Q. At what rate?

A. I was first to pay 2½ cts. per square foot, but afterwards I contracted to pay 5 cts. a square foot.

1168 Q. How did you happen to make the change?

A. Mr. Dickerson, one of the men that controls the business, I believe, wanted—he said that if I would sign a contract to that effect—said he wanted I should sign a contract to that effect, to pay him five cents per square foot for laying, and I done so.

Q. Did he agree to give you any rebate for any reason whatever?

A. No, sir; he did not.

Q. When was the change made from 2½ cts. to 5 cts. per square foot?

A. Some time last month. I think about the middle of the month.

Q. Have you laid any under the 5 cts. royalty?

A. Fifty feet—running feet.

1169 Q. Did you pay royalty on that?

A. No, sir; but what I paid previous to that was applied on that contract. I had no contract before that—that is, written contract.

Q. Was that one of the reasons why you consented to pay five cents, because they applied what you had paid before on the license?

A. No, sir.

Q. How did it happen that the previous payments were applied on this new license?

A. Mr. Perkins was the first man I talked to about it. I was furnishing him gravel for work here in the city and he was owing

1170 me some money and I talked with — about laying a walk and paying the royalty on the walk, and I turned the bill that was due me in on the royalty to him. He was owing me

some thirty-odd dollars and I just told him to apply that on the royalty business. I was owing him more than that on the royalty account.

Q. How much or about how much paving work was you doing each season?

A. I can't say; but not a great deal. I done, perhaps, 2,000 feet; maybe a little more, maybe little less; somewhere about that. I didn't keep any account of that particularly; done it with other business. Here and there put down a walk.

1171 Q. In getting jobs have you represented to parties that the royalty was 2 & ½ cts.?

A. Yes—that is, before I contracted to lay walks for five cents.

Q. What price per foot were you getting for finished walks?

A. I got from 15 to 19 or 20 cents, but 20 cents I asked; the last I done was fifteen, I think.

Q. Wasn't five cents a pretty heavy royalty for work done at those prices?

A. It is for fifteen cents.

Q. Isn't it for twenty cents when you did first-class work?

A. I rather think it is rather heavy.

1171½ Q. Since you have got your written license have you offered to do it at 2 & ½ cts. royalty?

A. I don't know; I might have done that; anyhow I don't remember exactly. I would have to settle that bill myself. I would do the work and charge the parties royalty so much.

Q. You have no understanding by which you get any rebate at all, do you?

A. No, sir; no understanding by which I get any rebate.

Q. Do you have to purchase the cement at any particular place under the license?

A. No, sir.

Mr. BANNING:

Q. When was it you say you were—that you was author-
1172 ized to lay that at 2½ cent- per foot royalty?

A. It was some time—a year ago in June; May or June last year—1883.

Signature wa-ved.

1173 WEDNESDAY, *the 16th day of July*, 1884.

Present: Mr. Banning & Geo. W. Hey and Mr. Bond.

GEORGE A. FARNUM, a witness on behalf of the defendants, being first duly sworn, was examined in chief by Mr. BOND and deposes and says as follows:

Int. 1. Please state your name, age, residence, and occupation.

A. George A. Farnum; age, 54; residence, Oak Park, Illinois; business, asphalt and Portland cement work.

Q. In your business of cement paving have you made any nego-

tiations or had any statements made to you in reference to
1174 license fees or royalties under the Schillinger patent? If so, state what.

A. I don't remember; there has been nothing definite said to me about a patent. I know there is a Schillinger patent. What it is I don't knew. I think Mr. Dickerson said something to me about it at one time. I didn't ask him what it was. I don't know what the Schillinger patent is.

Q. Was there anything said, whatever the patent may be, about your paying royalty under it or using it by Mr. Dickerson?

A. I think he told me if I had occasion to lay, as I under-
1175 stood, any diamond sidewalks to lay them and there would be no trouble about it—something like that. I don't know just how it was worded, and I had the impression that the diamond was the Schillinger patent.

Q. You think it was limited to that kind of walk, do you—the talk with Dickerson?

A. I had that impression—yes; there was very little said about it, anyway.

Q. What reason, if any, did he give you for saying that there would be no trouble about it?

A. I understood him that they were interested in the patent.

Q. And that if you confined yourself to that work there would be no royalty at all?

1176 A. No, sir; he didn't say that.

Q. What did he say?

A. He said there would be no trouble about it, as near as I can remember, if I paid the royalty, as I understood that they would make it satisfactory. I could not say; as I said before, there was very little said about it.

Q. What is Mr. Dickerson's business?

A. He is in the Empire Warehouse Company; that is all I know about it. I don't know what his position is there; that is all I know.

Q. Do you know who he has in the Empire warehouse with him?

A. I know Philip Wadsworth is there; that is all I know.

1177 Q. Have you done any of this kind of work within the last two years?

A. I have laid one sidewalk in front of my own residence in Oak Park, Illinois; that is all.

Q. Have you paid any royalty for it?

A. No, sir.

Q. Had no trouble?

A. No, sir.

Q. Have you been proposing or offering to do work of this kind?

A. I have, yes—not of the diamond style.

Q. Flag walk?

A. Yes.

Q. Have you had any understanding with Mr. Dickerson
1178 or others connected with the Empire warehouse in relation to that?

A. No, sir.

Q. Did you make any distinction between diamond and flag walk?

A. I never laid any diamond.

Q. Did you understand there was any distinction between the two kinds of work?

A. Only as I said—that I had the impression that the Schillinger patent was the diamond cement work; that is all.

Q. And you didn't anticipate any trouble from flag-work?

A. No, sir; I didn't know there was any royalty on flag-work; I thought a man had a right to make imitation flag-stone without paying royalty for it.

1179

Cross-examination by Mr. BANNING:

Q. As I understand, this walk before your house was flag walk, and not diamond?

A. Yes.

Q. And you understood it was the diamond walk that was covered by the patent?

A. That is the impression I had; yes.

Q. Did you inform Mr. Dickerson that you had laid this walk before your house?

A. No, sir.

Signature waived.

1180 WEDNESDAY, *the 16th day of July, A. D.* 1884.

Present: Mr. Banning & G. W. Hey & Mr. Bond.

E. G. WEST, a witness on behalf of the defendants, being first duly sworn, was examined in chief by Mr. BOND and deposes and says as follows:

Int. 1. Please state your name, age, residence, and occupation.

A. E. G. West; 39 years; residence, Chicago, 65 37th street; I am in the mason, plastering, and cement-work business; make a specialty of cement-work myself.

Q. In doing cement-work did you lay any pavements or walks?

A. Yes; I have been in that business.

1181 Q. Have you had any propositions or made any arrangement for royalty under the Schillinger patent?

A. This spring I went to Wadsworth and asked him what he was going to charge. I understood that for this Schillinger's patent, under the decision of Judge Blodgett, a royalty must be paid, and I asked him what he was going to charge for royalty. I understood at that time he stated if we did it we must pay royalty. He told me it would not be more than 2 and ½ cents, and probably less than that; for me to go ahead; that they had not settled how much it would be, but he told me positively that it would not be more than

1182 2 and ½ cts. a foot, and less if possible, and that possibly I could get it at 1 and ½ cts. per foot. I have not seen him since that time, and, of course, I calculated to pay him at that rate, probably about two cents.

Q. When you say two and a half cents what do you mean?

A. I mean I am to pay him out of my contract price 2 and ½ cts. per foot for all work covered by the Schillinger patent.

Q. Two and a half cents per foot instead of per yard?

A. Yes.

Q. I think you have stated that you have laid walks since that time?

A. Since that decision? Yes.

1183 Q. Since that conversation?

A. Yes; with that understanding.

Q. With that understanding?

A. With that understanding.

Cross-examination by Mr. BANNING:

Q. Have you ever paid for this pavement that you have laid since that conversation?

A. No, sir; I have not yet.

Q. Have you ever offered to pay at that rate, two and a half cents?

A. No, sir; I have not seen him yet.

Q. Wadsworth was the one you had the conversation with?

A. Yes.

Q. When was it and where?

1184&1185 A. I met him on the street. I went down and found he was going away to meet his lawyers at the Pacific Hotel in the afternoon. I walked up with him to the hotel and we separated there. I think it was some time in May if I am not mistaken; it was some little time ago.

Q. Was it not earlier than May?

A. It might have been earlier than May; it was directly after that decision of Judge Blodgett's; probably about two weeks after that, if you know when that was decided.

Q. There was nothing in writing between yourself and Wadsworth?

A. No, sir; nothing at all.

1186 Q. He stated, I believe, to you that the matter was not yet settled how much they would charge?

A. No; it was not settled.

Redirect examination:

Q. Was you ready at that time to take the license at two and a half cents?

A. Mr. Fulton and I both had been trying to find out how much they were going to charge for the license. We never could get them to say what they would do. Mr. Fulton could not get them to say. I don't know what the arrangement was; they only told me it would not be more than two and a half cents—Mr. Wadsworth.

1187 Q. Didn't you understand that two and a half cents was as heavy a royalty as the business would sustain?

A. I think it is more than it did sustain. I think 1 and ½ cents is sufficient for that royalty according to our prices, and I think they would make more money at that.

Q. What would you think of five cents?
A. I think it is an outrage to charge five cents for it.

Signature waived.

On the part of the defendant, adjourned to 10 o'clock a. m. July 17.

1188 Bill produced by witness Hutchinson, marked "Defendant's Exhibit Hutchinson," in words and figures as follows, to wit:

1189 "DEFENDANT'S EXHIBIT HUTCHINSON."

The City of Waukegan to Watson & Perkins, Dr., paving contractors & dealers in cedar posts. Office, room 48 Reaper block, N. E. cor. Clark & Washington streets. Orders by telephone. Dock & mill, foot Superior street, North Branch.

To walks in front of property as follows:

6 x 129½, J. Douglass	777 feet.
6 x 100, O. S. Johnson	600 "
6 x 100, R. Biddlecom	600 "
6 x 100, Geo. Kirk	600 "
5 x 132½, C. W. Upton	662½ "
5 x 52$\frac{8}{10}$, John Besley	263
5 x 102, George R. Lyon	514
6 x 86.6, A. Z. Blodgett	518
6 x 87, B. Hitchcock	522

5,056 ft. @ 2½ c., $126.40.

Correct.

W. M. REID.
H. C. HUTCHINSON.
E. BERK.

1190 And the complainants, to maintain the issues on their part, offered and put in evidence before the master and used at the hearing as follows:

Deposition of J. B. Hurlbut, recalled; deposition of A. H. Perkins, recalled; deposition of Philip Wadsworth, recalled; deposition of C. E. Hall, and deposition of J. B. Hurlbut, recalled, in words and figures as follows, to wit:

1191 WEDNESDAY, *the 16th day of July, A. D.* 1884.

Present: Mr. Banning & Geo. W. Hey & Mr. Bond.

J. B. HURLBUT, a witness recalled on behalf of the complainant, being first duly sworn, was examined in chief by Mr. BANNING, and deposes and says as follows:

Int. 1. Please state your name, age, residence, and occupation.

—. ——.

Q. You said in your other testimony, I believe, that Mr. Knowlton was your assistant superintendent?

A. Yes, sir.

Q. As I understand, when you was present superintending the job, Mr. Knowlton was not?

1192 A. Not often; no.

Q. There was only one of you required to superintend a job at a time?

A. Yes.

Q. When you was not able to do it he took your place?

A. He looked after furnishing the material and laid out the work.

Q. So that only one superintendent was needed?

A. That is all at one particular time.

Q. How long would it take to lay all the pavement that was contained in your statement which you furnished if you were to proceed in your ordinary way from week to week consecutively?

A. To make it a continuous work, do I understand?

1193 Q. Yes.

A. Well, for what we call one gang of men, five men—of course I am not giving precise time—it would take some 140 days, more or less.

Q. For one gang of men?

A. And one season's work or time for laying the pavement.

Q. It would take—counting the days when you could not lay pavement—about one season's work?

A. Yes, for one gang of men.

Q. That would extend from the first of April to the first of November or the middle of November?

A. Yes; to the middle of November and sometimes to the first of December.

Signature waived.

Adjourned to 2 o'clock p. m.

1194 FRIDAY, *the 18th day of July, A. D.* 1884.

Present: Mr. Hey and Banning & Mr. Bond.

A. H. PERKINS, a witness recalled on behalf of the complainant, being first duly sworn, was examined in chief by Mr. BANNING and deposes and says as follows:

Q. State whether you did any work at Waukegan, in this State.

A. I did.

Q. State the circumstances under which you did that work and the compensation that you received for it.

A. I was notified that Hurlbut was laying some walk there

1195 in Waukegan, and the owners of the patent consulted together and decided to have me go there and look it up and notify the parties of the infringement of the patent and see to what extent it was being infringed. I went there and saw what was being done

by Hurlbut's men, and I then went and notified the city authorities of the fact; showed them decisions that we had had in the United States courts sustaining that patent and telling them that for all work that Hurlbut laid in which we would be interested that we should require five cents royalty for any infringement; we should make them pay royalty. That was what I told Hutchinson,
1196 who was then mayor. Then they sent an attorney to the city to look up the matter. He came back and reported that the patent was valid and that they better be careful. Then they sent for me again, and they made this proposition to me, that they would furnish the sand and gravel and the city would do all the grading, and they would pay 2 and ½ cents besides and the property-owners would pay ten cents. That was the arrangement made with the property-owners—that is, the city would do the grading, furnish the sand and gravel, and pay 2 & ½ cents and the property-owners would pay ten cents. That was my contract. I refused. After putting down those different walks, especially one mentioned
1197 there—Judge Upton's—I was asked by him to put down more pavement at the same rates. There was simply no profit in it, and I told him we would not lay any more at those prices. He said he would be willing to pay more if that work was all right the next spring.

Q. In addition to the two and a half cents per foot which the city paid you they did the grading and furnished the sand and gravel?

A. Yes.

Q. How much was it worth per foot to have the grading done and sand and gravel furnished?

A. Four or five cents, perhaps.

Q. Four or five cents per foot?

1198 A. Yes.

Q. In addition to the two and a half which they paid you?

A. Yes. Not only that, but they pulled the cement from the depot to the warehouse—done all the teaming.

Q. Who, if anybody, was competing with you for this job at the city of Waukegan?

A. Mr. Hurlbut had made a proposition, so they informed me.

Cross-examination by Mr. BOND:

Q. Did they inform you that on receiving Mr. Hurlbut's proposition they had decided not to have the work at all?

A. Did they? They did not, any more than Mr. Hurlbut declared there was no patent on it.

1199 Q. Do you know what his bid was?

A. I don't know; seems like fifteen cents; I think that was what they told me.

Q. Isn't it a fact that the city did the teaming, paid the royalty, and the property-owners paid for the actual work?

A. The property-owners, as I say, paid ten cents; this was their own proposition; that they would give us—the property-owners;

we must look to them for ten cents and the city would do the teaming and grading and furnish sand and gravel and would pay two and a half cents besides; that was the contract.

Q. How did the city come to pay two and a half cents?

1200 A. Simply from the fact that we offered to do it at two and a half if they would furnish the sand and gravel and do the teaming; and they said a plank walk would cost them about that, and the city has to furnish their own plank walks; and they said they would rather furnish the sand and gravel for the purpose of having a good, permanent pavement. It seems there was an understanding before I went there between the property-owners and the mayor and council. The property-owners had agreed to pay ten cents if the city would pay the rest of the expenses. It was not a thing that I had fixed out; they had it already fixed before we got there the last time.

1201 Q. Did you not state to Mr. Hutchinson, the chairman of the committee, and to the mayor that you would not accept their proposition to lay it for ten cents because the royalty was two and a half, and that had to be added on?

A. I told Mr. Hutchinson that I should have to account for at least two and a half cents a foot myself for any work that I done there—royalty. I know that.

Q. Wasn't that so that the two and a half cents had to be added onto the ten cents?

A. No. I don't know that it was; that was all there was of it. I wanted twenty cents for the work, and I claimed that Hurlbut

1202 had to do it for so much less; I think fifteen, or something like that. They made that proposition, that the property-owners would pay ten cents. I must collect it of them, and they would pay two and a half and furnish sand and gravel and do the grading; that was the substance of it. They claimed to me that the plank walk would cost them about two and a half cents; something like that. There never was anything definite settled in regard to any royalty particularly, only what I have said, that I had got to account between the parties.

Q. Did you understand that the city was proposing to do

1203 the work itself at the rate of ten cents per foot until these officers were advised that there was a patent connected with it?

A. No; I don't remember that.

Q. You don't remember anything of that kind?

A. I don't remember that the city was ever intending to do this for ten cents.

Q. You don't, then, understand that that was how it happened, that the rate of ten cents was agreed on?

A. I heard that Hurlbut was putting work down there, and I went up there to stop him; that was what called me there.

Q. Did you hear at the same time that they declined to

1204 have it done at all if it cost fifteen cents?

A. No.

Q. Didn't hear anything about that?

A. No, sir; there never was any talk about any declining or any-

thing. I told them they could look up this patent, and they telephoned down to me to come up; they had looked it up.

Q. Why did you tell them that the royalty would be five cents per foot?

A. I told them that when we had this decision that we would have to have more for that pavement; that I should not probably have to enter into competition with Hurlbut. I told Judge Upton I refused to lay any more pavement for him. I could have
1205 laid 10,000 feet. I had some cement there all winter; left it there for the purpose of doing work there this spring. I told Mr Upton, who was there, "You will have a- opportunity of finding out before next spring whether it cracks or not, and then you will have to pay more for your work, if you have it done by us."

Q. Was Judge Uptons proposing to do the grading and furnish sand and gravel and do the hauling?

A. He had nothing to do with it. The city done that portion. They are willing to do it to-day. Hutchinson offered the same thing to me; said he thought he could get that done. I had a let-
1206 ter, also, from the mayor the other day, wanting to know if we could do that work at the same price this season—if we would charge them fifteen cents—if they would furnish sand and gravel and do the teaming, as they did last year.

Q. That was as cheap as you could afford to do it?

A. Yes.

Q. That was as cheap as you could afford to do it and do a good job?

A. That was as cheap as we could afford to do it and do a good job.

Q. Did you not state to Mr. Hutchinson or the mayor that the royalty you had to pay was two and a half cents per foot?

A. I stated before that *that* under the arrangement we had
1207 all the work I *I* had to do I should have to account for at two and a half cents to the parties interested with me.

Mr. BANNING:

Q. The party interested with you, to whom you had to account at the rate of two and a half cents, was the Saulsbury estate, was it not?

A. Yes, sir.

Mr. BOND:

Q. You spoke of accounting for two and a half cents royalty; wasn't that the entire royalty?

A. There never was any arrangement made, only all of us to keep track of pavement laid ourselves in that way.

Q. You accounted to Saulsbury estate for two and a half cents, and they to you for that?

A. Yes.

Signature waived.

1208 FRIDAY, *the* 18*th day of July, A. D.* 1884.

Present: Mr. Hey & Banning, for comp'ts; Mr. Bond, for def'ts.

PHILLIP WADSWORTH, a witness recalled on behalf of the complainants, being first duly sworn, was examined in chief by Mr. BANNING and deposes and says as follows:

Q. State whether you ever had any conversation with a party named E. G. West in relation to his laying pavement. If so, state when and where it was and what such conversation was.

A. Some time last spring I met Mr. West. I didn't know him. He came up and made himself known to me as I was walking from my warehouse, on Market St., up to the Pacific Hotel; said
1209 his name was West and that he wanted to buy some cement. As soon as he said he wanted to buy some cement I knew him to be the man that had worked for Saulsbury and others and Mr. Hurlbut, I think likely, and he wanted to know who to go to about the royalty. I said to him that really I could not tell, since the death of Mr. Saulsbury, who to talk with. I told him we were getting out letters of administration for the estate, &c. Well, he said, in reply: "I have got a job to do up in the south part of the city and I would like to do it." I said to him in substance just about what he says in his deposition that I said. I said: "There is nobody got any right. Perhaps I have as good a right as anybody to tell you, but we have not fully settled, since Mr.
1210 Saulsbury'- death, upon what we should do or what plan we should pursue, but if you will buy your cement of me I will see upon this job personally that you don't have to pay over two and a half or three cents per foot royalty. The conversation as he relates it is about true, with these qualifications that I am putting in, that I didn't know whether I had any right to do it or not; in fact, I had never talked much about it, and the conversation was mainly between Dickerson and Perkins as to the prices of things, but I did intimate to him all these things, but nothing permanent, only on these jobs, which probably did not amount to more than three or four hundred feet. I told him the royalty personally should
1211 not cost him more than two and a half or three cents at the outside. I said——

Q. And that, I understand you to say, was coupled with the suggestion on your part that he should buy his cement from you?

A. Yes.

Q. How much would that be worth to you per foot?

A. Well, I could not tell you exactly what it would be worth per foot, but of course I should expect to make some little profit on the cement.

Cross-examination by Mr. BOND:

Q. You speak of "my warehouse." What is your warehouse called?

A. The Empire warehouse. The Empire Warehouse Company are dealers in cement.

1212 Q. Do you know as a matter of fact whether Mr. West ever worked for Mr. Hurlbut or not?

A. No. I know he was a cement-worker. I don't know whether he ever worked for Hurlbut or who he worked for; pretty much all the different contractors, I presume; Perkins, Hurlbut, and all at times. He is a cement-worker and was to take a job himself, and I wanted to encourage him to do it.

Q. Had he not done work for Fulton and Saulsbury during his lifetime?

A. I really don't know. I have often heard *of* West spoken of.

Q. How long after the appointment of Mrs. Saulsbury as administratrix was you appointed her agent to look after these
1213 patent matters, or about how long?

A. Five or six weeks; in fact, I have acted as a sort of an agent for her all along.

Q. Is your appointment in writing?

A. No; merely verbal authority from her to act for her in any way I chose with regard to this patent.

Q. Did you make any difference in the granting of licenses whether part-es bought their cement of the Empire warehouse or elsewhere?

A. I would not consider myself at liberty to do so now. I might perhaps state the reason, because for a long while nobody had any money in the patent except the Empire Warehouse Com-
1214 pany. Since Perkins has put some money in, and others, I don't consider myself authorized to say until consulting the others what royalty should be charged. I merely want to say there is no material difference in the testimony of West, except with these qualifications. I remember the conversation with him about as he states it.

Signature waived.

1215 FRIDAY, *the* 18*th of July, A. D.* 1884.

Present: Mr. Hey & Banning, for compl'ts; Mr. Bond, for def'*ts*.

C. E. HALL, a witness on behalf of the complainant, being first duly sworn, was examined in chief by Mr. BANNING and deposes and says as follows:

Int. 1. Please state your name, age, residence, and occupation.

A. C. E. Hall; my residence is 3600 Dearborn street. I am in the street railway business at present.

Q. State whether you are acquainted with what is known as the Schillinger pavement.

A. Yes; I have some knowledge of it. I have worked it.

1216 Q. You have laid that kind of pavement?

A. Yes.

Q. For how many years have you worked it or laid it?

A. I have know- it for the last twelve years; fifteen, perhaps; twelve at least.

Q. State on what that pavement depends for its utility and success.

Q. Do you know of any demand for sidewalks to be laid
1225 with tar paper or some foreign substance in the joints between the sections?

A. No; I don't know that I know of any demand for material especially put in there. My understanding of it is that it is wholly unnecessary and is not part of the requisite for laying a sidewalk with a joint, that it is necessary to have anything between it at all. The mere fact of using a frame causes a seperation which will continue and so it will form a straight line up and down. Where a frame is used I consider that equivalent to using any seperating substance.

Q. You don't know of any pavements being laid lately
1226 in which there was tar paper or any substance which was to remain in between the joints, do you?

A. No; I don't know that I do.

Q. Do you think that kind of pavement would now be used?

A. I don't know of any objections to it. I don't think there are any objections. Still, it seems superfluous.

Q. Isn't the paper likely to get out, rot out?

A. No, sir; I don't think it is. If it does rot out it does no harm; leaves the joint just the same. It cuts no figure one way or the other.

Q. It would leave a little wider joint, a little freer joint for the blocks to work?

1227 A. It would not work; it would leave a freer joint, but I think the difference would be that in case of an uphe-val there would be no danger of the block rising and breaking off a portion of its adjoining blocks. I have seen it work both ways.

Q. How did this that had the tar paper in wear?

A. Well, I don't know as they wear any differently from any other without tar paper. The wear, the real wear, of the sidewalk is governed entirely by the quality of the material; that can be varied; different men differ in the manner of mixing.

Q. Some wear better than others laid in the same way?

A. Some wear better than others that is laid down in the same manner, but not with the same mixture.

1228 Q. Do you remember what the claims of the Schillinger patent were?

A. Well, I don't know that I could rehearse them particularly. My recollection is that one of the principal features was in the fact of making the stone in seperate blocks, so they could be removed if necessary. The matter of tar paper I recollect as being mentioned in the patent, but then I don't consider that one of the very essential points of the patent.

Q. During the early years of laying this patent did you lay it under Jenkins or Saulsbury or by authority from them?

A. No, sir; I laid it without any authority from anybody.

1229 Q. Did anybody ever disturb you?

A. No; because I laid very little of it in that particular manner that I speak of with the tar paper, but I had laid the diamond sidewalk here and the flag sidewalk here for a number of years and I never was disturbed.

Q. By the flag sidewalk do you mean that made of natural stone?

A. No; I mean laid in flags.

Q. Imitation of flags?

A. Imitation of flags; long joints. I never was disturbed about that. I had hints that I would be, but I never was.

Q. Did you ever read or have your attention called to a disclaimer to the patent made by Schillinger?

1230 A. Well, if I did it was quite a long time ago; it was some eight or nine years ago; there was a controversy came up and I read articles in the paper; it is so long ago that I don't think I could refresh my memory in regard to it. I hardly know what I did read at that time in regard to it. The most recent thing I have seen is some decisions in the last year or two; then I read probably the patent over again.

Q. In reading the patent over again you read it as it was issued and printed with reference to the disclaimer?

A. I think so. I don't remember particularly about that.

1231 Q. Your understanding of the Schillinger patent is that it covers any kind of a pavement laid in blocks or so laid that it will divide into blocks. How much royalty could you afford to pay on it at twenty cents per foot cost to the party for whom it was laid?

A. Well, I know what I could afford to pay.

Q. What could you afford to pay?

A. I could afford to pay anywhere from four to eight cents and still make a profit.

Q. At twenty cents a foot and make a good job?

A. Yes; I know what the material costs. I know what it costs to lay sidewalks, especially when it comes to laying imita-

1232 tion of flags.

Q. How much profit would you make at fourteen cents?

A. Anywhere—it would depend some on locality—but I could haul it anywheres in the city here if I didn't have to haul my material more than one mile. I could lay it anywhere in the city here at fourteen cents and make 2 and ½ cents a foot. The material, as I understand the cost of it, would range anywheres—and the hauling would make a difference in the cost of it—would range anywhere from ten to twelve cents a foot.

Q. How thick would you make the pavement and what quality of cement would you use?

A. Portland cement in all cases; not less than three inches in thickness.

1233 Q. Would your estimate cover simply materials or cover labor?

A. Covers labor, materials, and everything else. I figured often enough on it to know what it cost. I didn't bid when I bid these prices, but I know what the material cost, and so does any other practical man who has had experience in that line.

Q. You would hardly be willing to pay eight cents for the sake of making two and a half cents, would you?

A. Yes; I have been satisfied. I have laid that sidewalk as low

as twelve and a half cents and made a handsome profit—very glad to make that profit—and I didn't pay no royalty. I should consider if I had a large contract if I could make 2 and ½ or 3 cents a foot I would take it; of course, I would like to get more if I
1234 could. I know the price of that kind of work as worked and done by different contractors and have been brought in competition in laying that kind of sidewalk here at prices as low as thirteen cents here in the city.

Q. You would not expect first-class work at those rates?

A. I would. I should insist upon it, and would not consider it acceptable unless it was first-class work and guaranteed at that, and much of it is guaranteed at these very same prices right here in the city. At the present time that walk may be laid for thirteen cents and get a five-year guaranty.

Q. Suppose you were doing a job out as far as Western
1235 avenue, or three miles from the center of the city, 25 feet in length and 6 feet in breadth, could you make that for 13 cents a square foot?

A. Yes; just as well as here. The only difference is in hauling the materials. It is not in the cement or in the sand. There is only one wagon-load. You could have your cement from here out there and you could bring your gravel. No; I don't think there is any difference. I could direct you into a locality here not any further away where it would cost more—that would be directly west from here, where you have to haul all your material there, but when you go no-th or to that section you refer to I think the whole or part of the material is there.

1236 Q. There you used the sand that you excavated right out?

A. No, sir; I don't think I ever used excavated sand. I have used excavated gravel, but not sand. I have always used lake sand. Sometimes, in localities on the South Side, in the vicinity of 33rd street and Indiana avenue, you can get as good gravel out of an excavation there as you need to lay pavements.

Q. You can get neither at Western avenue—neither sand or gravel?

A. It depends upon what end you go in. You cannot at the south end; you can at the north end. It would have to be hauled or got in there in cars. The south end of Western avenue is all clay.

Signature waived.

1237 FRIDAY, *the 18th day of July, A. D.* 1884.

Present: Messrs. Hey & Banning, for compl't; Mr. Bond, for def't.

T. B. HURLBUT, a witness recalled on behalf of the defendant, being first duly sworn, was examined in chief by Mr. BOND, and deposes and says as follows:

Q. What is the average cost to you of a good cement sidewalk, such as you have been making?

A. Where it is done here in the city we calculate it will cost about sixteen cents a square foot. We are sometimes subject to from one

to two cents extra cost in preparing the foundation where there is clay and hard pan. We aim not to have anything that
1238 would heave within twelve inches of the bottom of the pavement, so it would sometimes cost us more than sixteen cents, including the preparing the foundation, and sometimes a little less. On the average, we calculate it would not be much different from sixteen cents a square foot.

Q. How much royalty would you or any person afford to pay on the cost at twenty cents a foot for the work?

A. I could not afford to pay much of any royalty and make living expenses. To pay much of any royalty you would want to receive more than twenty cts. a foot for work.

Q. Did you lay any Schillinger pavement under Jenkins
1239 & Selby or other parties claiming to control this territory under the Schillinger patent?

A. I did superintend for what is called the Schillinger Company here, ten or eleven years ago, one season.

Q. During that time did you lay any pavement which had tar paper or a similar substance in the joint?

A. We didn't lay any paving outside at that time but what did have tar paper in the joints.

Q. Of what use or benefit is an interposed strip of tar paper?

A. I don't consider it of any benefit anywhere; it is a detriment.

1240 Q. What are the difficulties which accompany the use of such strips?

A. It separates the blocks so they don't touch, and the paper becomes softened in time, becomes soft of pulpy, and lets the water down instead of making a water-tight joint, and makes a leakage. When we sometimes laid it over walks we never got it tight in that way; and a greater fault was the corner blocks are not defective—they would crumble on each side and the joint would have the appearance of being very large; show a larger joint; and it went into disrepute very soon; when we came to lay the close joint it took the preference.

Q. Did the tar-paper joint go out of use or demand?

1241 A. Yes, sir; I don't know of any being laid in the last six years in this town by any one who uses tar paper in the joints.

Q. What is your opinion of the five-cent royalty under the Schillinger patent if the tar paper is used?

A. I should not consider the paper any benefit; I don't see where a man could afford to pay any more royalty for using the paper; it certainly cost more than it would to lay it without the paper—from the expense of the paper and putting it in.

Cross-examination by Mr. BANNING:

Q. Did I understand you to say that the average cost of the pavement laid by you was sixteen cents a foot?

1242 A. Yes, sir.

Q. What was included in this sixteen cents a foot?

A. Two barrels of cement or more, one load of sand, yard and a half of gravel, and the expense of laying the work and preparing the foundation, as we sometimes have to remove a foot and replace it with cinders or gravel. We don't allow less than two barrels of cement to a hundred square feet; it would be equal to six and a half cents a foot. We have not paid less than $3.50 a load for gravel of a yard and a half.

Q. Then it includes the cost of all the materials and all the cost of laying it?

A. Yes, sir.

1243 Q. Including the wages of the men, superintending, &c.?

A. And preparing the foundation.

Q. Preparing the foundation, &c.?

A. Yes, sir; of course, living expenses have to come out of the profit; that don't cover it.

Q. Whose living expenses?

A. The party doing the work.

Q. You mean the profits over and above the sixteen cents?

A. Yes, sir.

Signature waived.

Which was all the testimony offered by either of said parties.

1244 The foregoing was all the evidence introduced on the trial of this cause by either party; and because none of the matters aforesaid otherwise appear the defendant prays that this his certificate of evidence may be signed and sealed and made a part of the record in said cause, and it is done accordingly.

H. W. BLODGETT, *Judge.*

Endorsed: Filed Nov. 16, 1885. Wm. H. Bradley, clerk.

Afterwards, to wit, on the twenty-seventh day of November, 1885, there were filed in said clerk's office two bonds in said entitled cause; which said bonds are in the words and figures following, to wit:

1245 Circuit Court of the United States, Northern District of Illinois. In Equity.

JOHN J. SCHILLINGER and OLIVE G. SALISBURY, Administratix of Elmer J. Salisbury, Deceased,

vs.

J. B. HURLBUT.

Know all men by these presents that we, J. B. Hurlbut, of Chicago, county of Cook, State of Illinois, as principal, and Florus D. Meacham and Frank S. Wright, both of Chicago, county of Cook, State of Illinois, as sureties, are held and firmly bound unto John J. Schillinger and Olive G. Salisbury, administratrix of Elmer J. Salisbury, deceased, in the penal sum of five thousand dollars ($5,000), lawful money of the United States; for the payment of which, well and truly to be made, we bind ourselves, our heirs, ex-

ecutors, and administrators, jointly and severally, by these presents.

The condition of this obligation is such that whereas, on the fifteenth (15) day of May, A. D. 1884, an interlocutory decree was entered in the above-entitled cause finding for the complainants and referring the same to a master to take and assess the damages; and whereas, on the seventeenth (17) day of November, A. D. 1885, a final decree was enterred in said cause fixing the damages
1246 and for the costs, from which decrees the said J. B. Hurlbut has taken an appeal to the Supreme Court of the United States:

Now, therefore, if the said J. B. Hurlbut shall duly prosecute his said appeal with effect and shall pay all damages and costs that may be awarded against him in case the said decree be affirmed in said Supreme Court of the United States, then this obligation shall be void; otherwise the same is to remain in full force and effect.

In witness whereof the said J. B. Hurlbut, Florus D. Meacham, and Frank S. Wright have hereto set their hands and seals this twenty-fifth day of November, A. D. 1885.

J. B. HURLBUT. [SEAL.]
FLORUS D. MEACHAM. [SEAL.]
FRANK S. WRIGHT. [SEAL.]

Approved:
H. W. BLODGETT, *Judge.*

Endorsed: Filed Nov. 27th, 1885. William H. Bradley, clerk.

1247 United States Circuit Court, Northern District of Illinois. In Equity.

JOHN J. SCHILLINGER and OLIVE G. SALISBURY, Administratrix of Elmer J. Salisbury, Deceased,

vs.

J. B. HURLBUT.

Know all men by these presents that we, J. B. Hurlbut, of Chicago, county of Cook, State of Illinois, as principal, and Florus D. Meacham and Frank S. Wright, both of Chicago, county of Cook, State of Illinois, as sureties, are held and firmly bound unto John J. Schillinger and Olive G. Salisbury, administratrix of Elmer J. Salisbury, deceased, for the full and true payment of any damages accruing to said John J. Schillinger and Olive G. Salisbury from the use of patent, reissue No. 4364, dated may 2, 1871, by the defendant, J. B. Hurlbut, between the seventeenth (17) day of November, A. D. 1885, and the date of the expiration of said patent No. 4364; for the payment of which, in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, and administrators, jointly and severally, by these presents.

The condition of this obligation is such that whereas, on the seventeenth (17th) day of November, A. D. 1885, a final de-
1248 cree was entered in said cause, from which decree the said J. B. Hurlbut has taken an appeal to the Supreme Court of the United States; and whereas, on the entering of said decree an in-

junction was refused pending such appeal, provided a bond be filed covering further damages accruing to the said John J. Schillinger and Olive G. Salisbury by the use of said patent from the date of entering said decree until the expiration of said patent by the said J. B. Hurlbut:

Now, therefore, if the said J. B. Hurlbut shall well and truly pay such further damages as shall accrue by reason of the use by him of the said patent, reissue No. 4364, between the date of said decree, November 17th, 1885, and the expiration of said patent, in case said decree shall be affirmed, then this obligation shall be void; otherwise the same is to remain in full force and effect; and in the event of the affirmance of the said decree by the Supreme Court of the United States a reference may be taken in this case in the circuit court of the United States for the northern district of Illinois to inquire as to the use of said patented device by the defendant since the entry of the decree of November 17th, 1885, to the date of the expiration of said patent No. 4364, and on the report or ascertainment of such use a summary judgment may be rendered on
1249 this bond without suit and as part of the final proceedings of this Court in said cause.

In witness whereof the said J. B. Hurlbut, Florus D. Meacham, and Frank S. Wright have hereto set their hands and seals this twenty-fifth day of November, A. D. 1885.

J. B. HURLBUT. [SEAL.]
FLORUS D. MEACHAM. [SEAL.]
FRANK S. WRIGHT. [SEAL.]

Approved:
H. W. BLODGETT, *Judge.*

Endorsed: Filed Nov. 27th, 1885. William H. Bradley, clerk.

1250 On the same day, to wit, on the twenty-seventh day of November, in the adjourned October term of said court, 1885, in the record of the proceedings thereof in said entitled cause, before Hon. Henry W. Blodgett, district judge, is the following, to wit:

Order

JOHN J. SCHILLINGER *et al.*
vs.
J. B. HURLBUT. } In Chancery.

The defendant in this cause having taken his appeal herein to the Supreme Court and having filed a bond conditioned for the payment of such further damages as may accrue to complainants by the use of the patented device involved in this suit after the seventeenth instant, it is ordered that no injunction issue herein.

Afterwards, to wit, on the eighth day of January, 1886, there was filed in said clerk's office a stipulation in said entitled cause; which said stipulation is in the words and figures following, to wit:

1251 Circuit Court of the United States, Northern District of Illinois. In Equity.

JOHN J. SCHILLINGER *et al. vs.* J. B. HURLBURT.

It is hereby stipulated, and agreed by and between the parties to the above-entitled cause, by their respective solicitors, that the clerk in making up the record on appeal of said cause to the United States Supreme Court may use at the proper places the printed proceedings and depositions of the several witnesses for the respective parties herewith furnished for that purpose, and that such printed depositions may stand in place of written copies of the same and be used with the same force and effect at the hearing in the United States Supreme Court as if written copies were provided and used.

And it is further stipulated and agreed that the copies of the several patents and other paper exhibits of both parties produced and used at the hearing of said cause and herewith furnished may be used at the proper places by the clerk in making up the appeal record to the Supreme Court of the United States and stand in place of written copies of the same and be used with the same force and effect at the hearing in the Supreme Court as if written copies thereof had been printed and used.

1252 And it is further stipulated and agreed that where copies of the patents and other paper exhibits are not herewith produced the original exhibits filed in said cause may be used by the clerk at the proper places in making up the appeal record to the Supreme Court of the United States.

And it is further stipulated and agreed that the mechanical exhibits of both parties used at the hearing may be retained by the respective parties, to be produced by them at the hearing in the Supreme Court, said exhibits to be filed with the marshal, as provided for by the rules of the Supreme Court, before the hearing of said cause.

And it is further stipulated and agreed that the clerk in making up the record of the Supreme Court may use the original copy of the record in the case of Schillinger *vs.* The Greenway Brewing Company, and also the original copy of the record and of the briefs in Schillinger *vs.* Gunther, which were produced by the complainants as exhibits herein.

DUELL & HEY,
By C. C. LINTHICUM,
Solicitors for Complainants.
WEST & BOND,
Solicitors for Defendants.

Endorsed: Filed Jan'y 8, 1886. W. H. Bradley, clerk.

1253 NORTHERN DISTRICT OF ILLINOIS, *ss:*

I, William H. Bradley, clerk of the circuit court of the United States for said northern district of Illinois, do hereby certify the above and foregoing to be a true and complete transcript of the record

of all the proceedings had in said court in the cause wherein John J. Schillinger and Olive G. Salisbury, administratrix of the estate of Elmer J. Salisbury, deceased. are the complainants, and J. B. Hurlbut is the defendant, as the same appear from the files and records of said court now remaining in my custody and control.

In testimony whereof I have hereunto set my hand and affixed the seal of said court, at my office, in Chicago, in said district, this fourteenth day of January, 1886.

[Seal of Circuit Court U. S., Northern Dist. Illinois, 1855.]

WM. H. BRADLEY, *Clerk.*

Endorsed on cover: N. Illinois C. C. U. S. No. 215. J. B. Hurlbut, appellant, *vs.* John J. Schillinger and Olive G. Salisbury, administratrix of Elmer J. Salisbury, deceased. Filed January 22, 1886.

IN THE

SUPREME COURT OF UNITED STATES.

OCTOBER TERM, A. D. 1888.

NO. 215.

J. B. HURLBUT,
Appellant,

vs.

JOHN J. SCHILLINGER and OLIVE G. SALISBURY, Administratrix of Elmer J. Salisbury, Deceased.
Appellees.

Brief and Argument for Appellant.

BRIEF.

This suit was brought for the alleged infringement of Reissued Letters Patent No. 4,364, dated May 2, 1871; said patent being a reissue of an original patent issued to John J. Schillinger July 19, 1870, No. 105,599, for an "Improvement in Concrete Pavements."

The court below, under the rule of comity, held the patent to be valid; that appellant had infringed, and decreed a recovery of $2,836.36, and costs.

NOTE—The record in this case is much larger than was required, as all of the matters between pages 235 and 578 are repetitions and duplications which are wholly useless in determining the issues of this proceeding.

Appellant, who was the defendant below, has taken his appeal for the purpose of obtaining a reversal of the findings, orders and decrees of the court below upon the following :

ASSIGNMENT OF ERRORS.

The errors assigned are:

I. That the court erred in giving the patent, if valid, a broader construction and scope than is warranted by its statements and claims.

II. That the court erred in holding the patent valid.

III. That the court erred in holding appellant's pavements to be infringements.

IV. That the court erred in awarding appellee all of appellant's profits.

I.

Error as to Construction and Scope.

Patents are to be construed:

1. By the words.
2. According to their relation to the older art.

Curtis on Patents, sections 453–6.

Courts have no authority to enlarge a claim.

Bridge Co. v. *Phœnix Co.*, 95 U. S. 278.

Where a patent is for a combination or arrangement of certain elements, the elements are to be taken as old and common, or public property.

Corn Planter cases, 23 Wall. 224.

Miller v. *Brass Co.*, 104 U. S. 352.

The Patent.

The Schillinger patent is for an improvement in concrete pavements.

It contains two claims.

The first is for an improved pavement composed of blocks alternating with strips of tar paper, or its equivalent.

The second is for the arrangement of tar paper between the blocks.

When the patent was reissued, its first claim was made to cover any pavement laid in sections which could be taken up, regardless of the interposition of anything between the blocks.

February 27, 1875, a disclaimer was entered, cutting out the description of shrinkage joints, and the description of cheap pavements which could be made without interposing anything between the blocks, and limiting the invention to such pavement as had strips of tar paper, or its equivalent, interposed in the joints *between* the blocks *during the process of formation*.

This disclaimer practically, if not in terms, canceled the first claim.

If it did not cancel the first claim, it limited it to such pavements as had tar paper, or its equivalent, permanently interposed between the blocks during the process of formation, which was to remain as a part of the organized pavement.

Unless the first claim is held to include tar paper strips as a part of the completed and organized pavement, then it is a broad claim for all kinds of concrete pavements laid in blocks *in situ*, and void.

When tar paper is left out, the pavement cannot contain in it anything that is of Schillinger's invention.

When the tar paper is left out, the first claim covers any artificial pavement, however laid or made, as Schillinger does not claim anything in relation to the materials used.

He does not claim anything in relation to the process

of making, unless it be by the words "in the manner shown and described."

The manner shown and described is, pieces of tar paper extending from the top to the bottom of the pavement.

The manner described is, that a strip of tar paper is placed against the edge of the finished block, and then the new block is formed against this strip, and so on, adding strips and blocks until the pavement is completed.

The manner described is placing the strips between the blocks "while in the process of formation."

The disclaimer disclaims everything which does not have the strip put in during the process of formation.

"In the manner described" therefore means alternating the strips of tar paper placed in the body of the pavement during the process of forming the pavement, which strips are to remain as a permanent part of the completed pavement.

The second claim is, upon its face, limited to this arrangement of tar paper within the joints.

It is again limited to this by the disclaimer.

Between the date of the original and the reissued patent, to wit, February 14, 1871, Schillinger obtained a second patent, in which he states that his first patent covers the interposition of tar paper *between* the blocks.

He thus gives his understanding of this patent to be only for what he originally claimed, which original claim is the second claim of the reissue.

There is much talk in the record about upper and lower courses of materials, also about lower courses and finishing courses; but this is all outside of the patent.

There is not a hint or intimation in the original patent, or in the reissue, that there is any such thing as

lower and upper or lower and finishing courses known to the art of paving.

The making of pavements, however, in one, two or more courses, is very old, as the Romans made them of three layers, the lower one being the Schillinger concrete.

The first claim of the patent is for a pavement composed of blocks of concrete alternating with strips of tar paper, or its equivalent, which form a component part thereof.

The second claim is for the insertion of tar paper between the blocks of a concrete pavement.

That the claims cannot be lawfully extended in their scope by construction, to include more than tar paper or its equivalent placed between the blocks while in the process of formation, to prevent adhesion, and leave a water-tight joint, is emphasized by an examination of the

Prior Art.

The art of making concrete pavements or roadways is so very old that much of it does not appear in books or in patents.

The art, as shown in this record, commences with the English patent to Claridge in 1837.

Claridge does not claim anything for the methods or processes described by him for constructing his pavement.

All that he at that date claimed to have invented was a new composition of materials to be laid according to the then known English practice described by him.

The practice described is, to first place upon a proper foundation two flat bars, three or four feet apart, then fill the space between them while the material is in a semi-fluid condition; then strike it off with a straight-edge to

produce a uniform surface; then, after laying the first section, dispense with the use of one of the guide-bars, and use the completed section in its place; then, filling and smoothing the surface of the next section in the same way, and so on, with one guide-bar and the straight-edge, till the desired area is covered by these flags.

Claridge describes the use of bars or joists for forming seams or joints; the use of a leveling straight-edge; the forming of the sections upon the ground in the position where they are to remain, thus forming a completed Schillinger pavement, except the alternating strips of tar paper.

The Claridge patent of 1837 amply describes the full, complete and identical process and manner of making used by the appellant, who does not use Schillinger's tar paper addition to the art.

D'Harcourt, in 1839, obtained a patent for what he calls, artificial granite, stone, marble or concrete.

He applies his concrete to the ground or floor where it is to remain and be used.

He forms his blocks by the use of zinc or tin molds or frames, which he places upon the foundation, and withdraws them when the material is set. He then moves the frames or molds to form adjoining sections or blocks, until the pavement is completed. When the surface of the pavement is dried, he polishes it in the same way that natural marbles are polished, which is, by rubbing them when wet, with a stone.

This fills the mold-seams or joints, and thus forms joints with a foreign substance interposed between them; as such joint filling material will not reset or re-form.

This patent describes the use of molds placed in the

position to form blocks where they are to remain for use; also:

Blocks formed with narrow grooves around them, which are either filled or left unfilled, and the use of concrete or artificial stone.

This patent clearly describes a pavement laid in detached sections, which can undoubtedly be taken up, and which would be fully covered by the Schillinger patent, according to the appellee's contention.

We here have the Schillinger pavement, with the sole exception of the alternating strips of tar paper, but with loose material in the joints as their equivalent.

Coignet, in 1855, obtained a patent for the manufacture of concretes to be used as artificial stone for building and other purposes.

He says: "For the manufacture of the said concretes "I use the ordinary or hydraulic lime, slackened on the "ordinary plan, in order that it may form a paste as solid "as possible." In this mixture he places broken stone, grit, sand or metal.

He describes the laying of this material in the place where it is to remain for use.

He speaks of applying it to floorings, walls, passages and to the ordinary roads, walks, pavements and floors covering the road, etc., mentioning a very large variety of uses.

His description is mainly applicable to the use of concrete in the making of buildings made in sections, formed in place by the use of removable molds.

Haichois, in 1856, obtained a patent in which he describes layers or strata, also the use of wood, vulcanized caoutchouc, or gutta-percha strips placed *between* the

blocks, and left to remain as permanent parts of the pavement.

This patent describes a complete pavement, formed by the use of molds, the blocks to remain in the place where they are made, with alternating strips of wood or vulcanized rubber, or both, which are to remain as a permanent part of the pavement.

The difference between the Haichois pavement and the Schillinger, is the difference between vulcanized rubber and tar paper, as Schillinger also proposes to use molds.

If vulcanized rubber is one of the equivalents for Schillinger's tar paper, then his patent is fully and completely anticipated.

Appellees' expert attempts to avoid the force of this patent on two grounds:

First, because the pavement is not made of concrete, and

Second, because it does not describe *tar paper*.

Haichois says that he uses beton, which is the French word for concrete, and he describes it as a composition of lime and sand.

He also uses broken stone, and uses asphalt for a finishing course. Asphalt, as here used, is pulverized bituminous limestone.

Schillinger does not limit himself to material. His patent covers any known materials, and therefore, covers the Haichois material.

If the second point taken by the expert is good, that Haichois does not anticipate Schillinger because he does not mention tar paper, there should be an end to this case, as there is no pretense that the appellant interposed tar paper or anything else between his blocks, or that he even forms separate blocks.

The patent says "tar paper or its equivalent." Vulcanized rubber for this purpose must be the full equivalent of tar paper.

An equivalent is the same as the thing itself.

Machine Co. v. *Murphy*, 97 U. S. 120.

Chesneau, in 1852, obtained a patent, in which he proposed to use Roman cement, with other things, for making an indestructible pavement.

He mentions the difficulty of taking up parts of this kind of pavements, when not laid in sections, and he proposes to avoid such difficulty by the use of what he calls "wooden panels," which are to remain in the pavement, and constitute a part of it, the pavement separating by the panel lines, so as to be removable.

H. P. Russ, in 1848, obtained an American patent, in which he proposed to make pavements of what is known by the technical term of "concrete," which he proposes to lay over sewers. These panels are to be placed where it is desirable to gain access beneath the pavements, in frames, which may be removed with the concrete sections, or the concrete sections removed without lifting the frames. He says: "and *flagging of the thi sidewalks* "D may *all* be laid of paneled and *divided sections of* "*concrete*," thus showing that he proposed to make sidewalks of divided sections, which could be detached one from the other, and which had filled joints between the sections.

Van Camp, in July, 1869, proposed to lay the concrete pavement upon a sand foundation in such a manner that the sand would become interposed between the joints.

He proposed to lay his blocks either with or without molds.

He uses asphaltum or coal tar for cementing his crushed or pulverized stone or gravel.

Charles Row laid malt floors in Baltimore the same way that appellant lays them, twenty-five years ago.

Michael Botzler laid malt floors here as early as July or August, 1869, the same as they are now laid.

Stone-flags, tiles and other walks are by common practice made water-tight by calking the joints.

This examination of the older art shows that Schillinger has not added anything to the art of paving.

The most that Schillinger can claim is the selection of tar paper in place of wood, vulcanized rubber, or surface scrapings for the joints, which is not invention.

II.

The Patent Void.

This exhibition of the prior art shows that the court erred in holding the patent to be valid or entitled to equivalents for tar paper.

The mere carrying forward of an old idea with better results, is not such an invention as will support a patent.

Smith v. *Nichols*, 21 Wall. 112.
Roberts v. *Ryer*, 91 U. S. p. 159.
Heald v. *Rice*, 104 U. S. p. 755–6.

It is the policy of the law to reward inventors who make an advance in the arts, and not those who gather foam.

Atlantic Works v. *Brady*, 107 U. S. 192.

Patentees who are not pioneers in the art, are limited to their actual improvements.

R. R. Co. v. *Sayles*, 97 U. S. 591.
Duff v. *Pump Co.*, 107 U. S. 636.

A patentee cannot broadly invoke the doctrine of mechanical equivalents, unless he precedes all others in originating the device or art.

R. R. Co. v. *Sayles.*

The *end to be accomplished* is not the subject of a patent. The invention consists in the means. A different *form* or different *arrangement* does not infringe, though the same result is produced.

Carver v. *Hyde*, 16 Pet. 513.
Burr v. *Duryee*, 1 Wall. 531.
Fuller v. *Yentzer*, 94 U. S. 291.

A substantially different *manner* of arranging or *combining the same parts*, producing the same result, is not an infringement.

Brooks v *Fiske*, 15 How. 213.
Snow v. *Railway Co.*, 121 U. S. 630.

A patentee cannot find infringment by functions, unless he is the originator of the *device or art.*

Ashcroft v. *R. R. Co.*, 97 U. S. 189.
R. R. Co. v. *Sayles.* See, also,
Matthews v. *Machine Co.*, 105 U. S. 59.
Bridge v. *Excelsior Co.*, 105 U. S. 618.

"When the state of the art is such that the field of "invention is circumscribed, the invention of a new "patentee *must necessarily* be confined *strictly to the* "*description* of the article as set forth in the specification "and claims."

Neacy v. *Allis*, 13 Fed. R. 874.
Duff v. *Pump Co.*

An improver who effects the desired result, in a better

or cheaper manner, has no claim to the whole art or machine which he has improved.

Burr v. *Duryee*, 1 Wall. 531.

All others have an equal right to improve the same old machine, provided they do not use the *peculiar* characteristics of the previous invention.

Burr v. *Duryee; McCormick* v. *Talcott*, 20 How., 402.

Adjudications.

The reported cases which are founded on this patent, and are older than this case, are:

Schillinger vs. Gunther, 2 B. & A. 544.
Same vs. Same, 3 B. & A. 491.
Same vs. Brewing Co., 17 F. R. 244.
California S. P. Co. v. *Perine*, 8 F. R. 821.
Same vs. Freeborn, 17 F. R. 735.

From these older decisions we find that the courts held:

1st. That the disclaimer practically disclaimed the first claim.

2d. That the patent has nothing to do with the method or process of forming the detached blocks.

3d. That the patent is limited to such pavements as have the blocks made free, by interposing between them, during the process of formation, something equivalent to tar paper.

4th. That the surface marking over the seam lines, where the blocks are formed against each other to control the cracking, is not an infringement.

5th. That the described materials and manner of forming detached sections, where there is nothing interposed between the blocks, is open and free.

The cases which have been decided since the hearing in this cause are:

California Paving Co. v. *Molitor*, 113 U. S. 609.

Same v. *Schalicke*, 119 U. S. 401.

The first case, being a contempt proceeding, does not go into the merits of the case; but the second one appears to dispose of the case at bar on the question of infringement, which was the only question raised.

The pavement and process for forming the blocks, there held not to infringe, was the Hurlbut pavement and process patented to appellant. (See Exhibit Hurlbut Patent, p. 84.)

The later circuit decisions, where the question of infringement and prior decisions are elaborately considered, are:

Schillinger v. *Cranford*, 37 O. G. 1,349.

Same v. *Middleton*, 31 F. R. 736.

All of these cases limit the patent to some permanent dividing substance between the blocks, and SAWYER, J., in *California Paving Co.* v. *Freeborn*, 17 F. R. 735, overrules his own decision in *Same Co.* v. *Perine* 8 F. R. 821, and declines to hold surface marking to be an infringement.

This is the first case in which the prior art was shown. The answer in this case was copied in *Schillinger* v. *Greenaway Brewing Co.*, 17 F. R. 244, but no proofs were made concerning the matters so set up, by the defendant.

The opinions of the court below state that, but for the rule of comity, the court would not have held the patent to be valid under the showing of the prior art.

Disclaimer.

Disclaimers can only be filed for the purpose of canceling or limiting some matter claimed.

Unless the disclaimer reduces the scope of the patent, it is unlawful.

The Schillinger disclaimer does reduce his patent in the following particulars, to wit:

1st. It prevents the patent from covering joints made by the shrinkage of the material.

2d. It takes out all claim for any pavement in which tar paper or its equivalent is not a constituent element.

3d. It takes out all claim for any pavement or process of making in which the interposed joint material is not placed between blocks "while in the process of formation."

The disclaimer either cancels the first claim or it makes the two claims substantially alike.

Reissue.

If the appellees' theory of the scope and construction of the reissued patent is correct, then it is void, as it is not for the same invention as that of the original patent.

The law of reissue, on this question, is too well settled to require a citation of authorities.

III.

Error as to Infringement.

The burden of proof on the question of infringement is on the appellees.

Cammeyer v. *Newton*, 94 U. S. p. 231.
Bates v. *Coe*, 98 U. S. p. 49.

The appellees have not made even a *prima-facie* case of infringement.

They do not state which claim the action is based on.

They do not point out how either claim has been infringed.

They only prove that the appellant has made some malt floors, flag and diamond pavements, of concrete, by the use of guide-strips or joists.

They do not claim that any tar paper or its equivalent has been used in making any of the floors or pavements made by appellant; but, on the contrary, they admit that it has not been used.

The first claim is for the pavement itself, when laid in the "manner described."

The only "manner described" in which this pavement differs from those admitted to be old in the specification, is the interposition between the blocks, of strips of tar paper while the pavement is in the process of formation.

The pavement shown and claimed in their patent is a pavement having strips of tar paper extending from the bottom to the top, and appearing on the top, or surface.

The patented pavement is a pavement laid in blocks alternating with strips of tar paper or its equivalent.

The appellant has not made any such pavement.

The second claim is for the tar paper or its equivalent arranged between the blocks.

Appellant has not arranged any strips of tar paper or its equivalent between the adjoining blocks of a concrete pavement; he has not, therefore, infringed either of the claims of this patent.

What the appellant has made is:

First—Malt floors.

These were laid in sections or strips, using timbers for the boundary on one side, and the finished section (after

the first one has been laid) for the boundary on the other side, and by breaking down the lines or edges of the finished blocks prevented the formation of seams or joints as far as possible.

Laying concrete in sections, when hydraulic lime or cement is used for the cement, is an inherent necessity, as it sets too quickly to permit the laying of it in any large quantity.

Laying in sections is a necessity, and it is not a discovery or invention of Schillinger's.

Second—Flag pavements.

These are laid the same as the malt floors, with the exception that the edge of the finished section is not broken down, and with the addition of marking the upper course to imitate natural stone flagging; to prevent ragged edges at the line of junction, when the sections shrink some months afterward, and thus to improve the appearance.

The patent is silent, since the disclaimer was filed, as to shrinkage joints.

The patent is silent as to any top or surface work of any kind, after the blocks have been made, or during the progress of their formation.

All of the surface trowel marking, straight-edge marking, slight cuttings, and controlling the line of cracking, are entirely outside of and foreign to the patent.

Appellant has not interposed any tar paper or its equivalents between the blocks of his flag pavements.

The appellant has used the identical Claridge process in making his flag pavements.

Third—The diamond pavements.

The diamond pavement laid by the appellant has been made by the use of half-diamond or notched guides, instead of the straight ones used in forming the larger flags.

This guide has, in all cases, been made with over and under bevels to lock the blocks together, instead of forming them with free joints.

Appellant's diamond pavement cannot be taken up without disturbing adjoining blocks.

Appellant's pavement can only be taken up by beginning at the outer edge and taking out all of the blocks between the outer edge and the block which it is desired to reach.

The diamond pavement has no tar paper or its equivalent interposed between the blocks.

Appellant's diamond pavement is practically a solid pavement.

Appellant uses surface strips to prevent the flowing or mixing of the surface colors.

This surface material and these parting strips which enable such colored surface material to be used, are wholly outside of appellees' patent.

The attempt to hold that these color parting strips have any relation to the tar paper strips of the patent is absurd.

The attempt to hold that the two little hooks used to prevent these color parting strips from slipping, are the equivalents of tar paper strips going from the top to the bottom of the pavement for the full length of the blocks, is equally absurd.

The attempt to hold that the workman's act of surface marking, either by a trowel or a sharpened straight-edge, is the equivalent of strips of interposed tar paper, which is to form a component part of the pavement, is more absurd.

The patentee states that he does not confine himself to the materials to be used in forming the body of the

pavement. The talk about the kind of material to be used is, therefore, outside of the case.

There is no intimation in the patent that Schillinger discovered anything new in relation to the process of making, except the introduction of full strips of tar paper within the body of the pavement during its formation.

The concrete used by Schillinger is old.

The process, even to the introduction of strips of wood or vulcanized rubber in the joints between the blocks, is old, and *tar paper*, without equivalents, is the only thing which can be used to differentiate the Schillinger pavement from the older ones.

This difference cannot be found in the appellant's work.

For malt floors and flag walks, appellant uses the Claridge process.

For the diamond pavement, appellant uses old guides, color parting strips, with beveled blocks of his own invention, and which are patented to him.

All of these differences between appellant's diamond pavement and the older tesselated or small block pavements, *are of Hurlbut's invention*, and are not of Schillinger's invention.

Appellant, in making diamond pavements, is working under his own patent.

The appellant does not infringe the Schillinger patent.

The appellees have not shown that appellant has in any way used anything that is of Schillinger's invention, or that is covered by his patent.

The court erred in holding that appellant had infringed.

IV.

Error as to Profits.

While the court below was right in holding that appellees had failed to show an established royalty, and in sustaining the exceptions to the master's report, it was wrong in giving to the appellees appellant's entire profits.

The testimony and findings, which show that the court awarded the appellant's entire profits, are considered in the argument, and are not here pointed out.

That such an award is unlawful is pointed out in *Schillinger* v. *Gunther*, 3 B. and A. 497–8, by Mr. Justice Blatchford, in respect to this patent, and in the numerous cases there cited.

Also by this court in:

Garretson v. *Clark*, 111 U. S. 120.

Black v. *Thorne*, Id. 122.

ARGUMENT.

I.

Error as to Construction and Scope.

The patent is for an improvement in concrete pavements. The title, as well as the specification, admits that concrete pavements laid in blocks, as a class, are old, and the fact that they are old is shown by the exhibits and testimony.

The statement of invention made in the original patent, is as follows: "This invention relates to pavements "for sidewalks and other purposes, and consists *in com-* "*bining, with the joints* of concrete pavements, *strips of* "*tar paper* or equivalent material arranged *between* the "several blocks in such a manner as to produce a suitable "*tight* joint and yet allow the blocks to be raised sepa-

" rately without affecting or injuring the blocks adja-
" cent thereto."

The claim based upon that statement is as follows:

" What I claim as new, and desire to secure by letters
" patent is — The arrangement of *tar paper* or its equiva-
" lent *between* adjoining blocks of concrete, substantially
" as and for the purpose described."

The patent was reissued May 3, 1871, with the following statement of invention and claims:

" This invention *relates* to a concrete pavement *which*
" *is laid in sections*, so that each section can be taken up
" and relaid without disturbing the adjoining sections.
" *With the joints* of this sectional concrete pavement *are*
" *combined strips of tar paper* or equivalent material
" *arranged between* the several blocks or sections in such
" a manner as to produce a suitable *tight joint* and yet
" allow the blocks to be raised separately without affect-
" ing the blocks adjacent thereto." The claims are:

" 1. A concrete pavement laid in *detached* blocks or
" sections, substantially *in the manner shown and*
" *described*."

" 2. The *arrangement of tar paper* or its equivalent
" *between* adjoining blocks of concrete, substantially as
" and for the purpose set forth."

The original statement of invention is: " This invention *relates* to pavements for sidewalks and other purposes." The reissue statement is: " This invention *relates*
" *to a concrete pavement which is laid in sections*, so that
" each section can be taken up without disturbing the
" adjoining sections."

This statement is an admission that concrete pavements laid in sections which could be taken up, were old, and that the improvement *relates* to that class of pave-

ments in which the sections can be taken up without disturbing the adjoining ones.

This preliminary statement is in strict accordance with the fact that concrete pavements, laid in sections that could be taken up, were old at the time this patent was originally granted. The sole thing left to be determined is, in what respects did Schillinger improve this class of pavements.

The original patent was clear and specific that the only improvement which Schillinger made in this class of pavements, was just as he claimed, to wit: "The arrangement of tar paper or its equivalent *between* adjoining blocks of concrete." This is all that he invented; this is the only improvement made, and this is all that he originally claimed.

Shortly after obtaining the original patent, and before it was reissued, Schillinger obtained a second patent, to wit, No. 111,879, dated February 14, 1871, in which he makes this statement: "I do not wish to claim in this "present application for a patent the construction of a "*cement bed in sections* with *paper* or other suitable "material *interposed between the joints*, this construction "being fully described in letters patent granted to me "July 19, 1870." (P. 84.)

From this it appears that he then only understood that the invention covered by this patent was for *interposing* paper or other material *between* the blocks.

When the patent was reissued, two claims were made, to wit: first for the completed pavement laid in detached blocks *in the manner shown and described;* second, "the "arrangement of *tar paper* or its equivalent *between* the "adjoining blocks of concrete, substantially as for the "purpose set forth."

It will be seen that this second claim is the sole claim of the original patent, and that the first claim is new.

This new first claim appears to be the one upon which appellant is sued. As the patent stood, when originally reissued, this was a broad claim, for the reason that certain new matters had been injected into the specification, giving it a sufficient scope to cover shrinkage joints, or joints without having anything placed in them, or for a pavement in which the strips of tar paper were omitted, and nothing placed in the joints. This is what is now contended for, on the part of the appellees, as the true construction of this patent. If the reissue had stood without change, this construction might have been contended for with some reason; but, as it now stands, such contention is contrary to the patent itself.

Sec. 4,917 of the Revised Statutes provides as follows: "Sec. 4,917. Whenever, through inadvertence, "accident or mistake, and without any fraudulent or "deceptive intention, a patentee *has claimed more* than "that of which he was the *original or first inventor* or "discoverer, his patent shall be valid for all that part "which is truly and justly his own, provided the same is "*a material or substantial part of the thing patented* * "may * make disclaimer of such *parts of the* "*things patented* as he shall not choose to *claim or to hold* "by virtue of the patent."

From this section, we find that such a disclaimer can only be filed when by some mistake a patentee *had claimed more* than his invention, or more than he chose to hold. Under this section the courts have uniformly held that a patentee has no right to make such disclaimer, except where he had claimed *more* than he invented or wanted, and that, while the disclaimer might cut out

portions of the specification, he could not so disclaim except the portions cut out affected *the claim*, and had the effect to make it *narrower* than it was before, otherwise a disclaimer would take the place of a reissue; or, in other words, a patent can only be amended by disclaimer in respect to something claimed, while a mistake in the descriptive part can only be corrected by a reissue. It therefore becomes important to carefully consider Schillinger's disclaimer.

The substantial part of the disclaimer is as follows: "That he has reason to believe that through inadvertence, "accident, or mistake *the specification and claim* of said "letters patent are *too broad, including* that of which your "petitioner *was not the first inventor*, and he therefore "hereby enters his disclaimer to the following words: "'And since the concrete *in setting shrinks*, the second "block when set *does not adhere* to the first, and so on,' "and which occurs near the middle part of said specifica- "tion, and to the following words near the end of the "specification:"

"'In such cases, however, where cheapness is an "object the *tar paper may be omitted*, and the blocks "formed without *interposing* anything *between their joints*, "as previously described. In this latter case the joints "soon fill up with sand or dust, and the pavement is "rendered sufficiently *tight for many purposes*, while the "blocks *are detached* from each other and *can be taken up* "and relaid, each *independent* of the adjoining blocks.'

"Your petitioner hereby *disclaims* the forming of "blocks from plastic material, *without interposing* any- "thing *between* their joints, while *in the process of* "*formation*."

It will be seen from this disclaimer that the reissued

patent in some material way contained that of which Schillinger was not the first inventor. The question therefore arises, under this disclaimer (as the claims are not changed), What is it that Schillinger covered by his reissued patent which was not of his invention? To this question, he, by his disclaimer, makes the following answer:

First, I am not the inventor of shrinkage joints, or of a pavement which contains shrinkage joints only.

Second, I am not the inventor of a concrete pavement where tar paper or its equivalent is omitted, or of any pavements formed without *interposing* something between the blocks.

Third, I am not the inventor of a concrete pavement where the blocks are detached from each other, " and can " be taken up and relaid each independent of the adjoin- " ing blocks; " and,

Fourth, I am not the inventor of a pavement having tar paper in the joints, unless the same is put in " while " the pavement " is in process of formation."

These four features of the pavement are eliminated from the patent by the patentee himself, and when these four features are eliminated, the reissued patent, so far as its claims are concerned, may not have been materially changed from its original. When these matters are cut out of the reissue specification, the words of the first claim, " in the manner shown and described," narrow it down to a pavement made of blocks having strips of paper interposed *between* such blocks *during the process of formation*, and that the difference between the first and second claims is, that the first is for any concrete pavement formed of blocks in which strips of tar paper or its equivalent are interposed in making, to form water-tight joints, when blocks are formed directly upon the foundation where they

are to remain. The second claim is for the tar paper strip itself, when interposed between blocks of concrete.

There is no difficulty in understanding the true construction and scope of the patent, when the effect of the disclaimer is understood, and the description of the manner of making the pavement is applied.

The description or specification for making the pavement is as follows:

" *Between* the joints of the adjacent blocks are placed " strips *b of tar paper* or other suitable material in the " following manner: After completing one block, *a*, I place " the *tar paper b along the edge where the next block is to be* " *formed*, and I put the plastic composition for such next " block *up against the tar paper joint* and proceed with the " formation of the new block until it is completed. In this " manner I proceed until the pavement is completed, *inter-* " *posing tar paper between the several joints*, as described. " The paper constitutes a *tight, water-proof joint.*"

From this it will be seen that the patentee himself has withdrawn from the patent all claim to any pavement, made in sections that can be lifted up without disturbing the adjoining sections, and to all kinds of concrete pavement, except for a pavement having strips of *tar paper or its equivalent interposed* " during the process of formation," *between* each and every one of the blocks. This is the pavement called for by his first claim, and for his second claim he has only claimed the use and application of *tar paper* for this purpose.

This patent seems to be a clear and specific one, for a pavement in which tar paper or its equivalent is used between the blocks, and for the use of tar paper for making *water-proof* joints, and upon its face the patent is for this, and nothing more.

This is the true meaning of the patent upon its face, and further, it will be found that this must of necessity be held to be the true construction of the patent when the older art is considered, and it will further appear that, upon the construction contended for by the appellees, the patent is absolutely void.

Prior Art.

In order to avoid repetition, the prior art is here considered in its relation to the Schillinger patent as we understand it; and also according to appellees' contention, as to anticipating the improvement in concrete pavements described and claimed.

In considering the older art, we may eliminate all inquiry into ingredients, materials and processes used in making the pavement sections, as Schillinger says: "I do not confine myself to any definite proportions *or materials* for making the concrete composition."

All that we have to find in the older art to defeat the patent as appellees understand it, is to find a pavement that is laid in sections in the place where it is to be used.

The English patent to Claridge of 1837 is for a mastic or composition applicable, among other uses, to "Paving and Road Making."

Claridge fully sets forth his process of laying in forming paths or ways, and in order that a comparison between the method of Schillinger and that of Claridge can be made, we print them as follows:

CLARIDGE, 1837. (*Record, pp. 61-2.*)	SCHILLINGER, 1870. (*Record, p. 35.*)
"In forming ways or paths	"In carrying out my inven-
"I usually proceed thus:	"tion I form the concrete
"Upon a proper foundation	"by mixing cement with
"I place two flat iron bars	"sand and gravel or other

" parallel to each other at " a convenient distance from " each other—say from three " to four feet. *These bars are* " *of the thickness to which* " *the mastic cement or com-* " *position is intended to be* " *spread*, usually about half " an inch thick. *Between these* " *bars* the fluid mastic and " fine gravel or sand, mixed " as aforesaid, is poured and " spread and the surface " made regular and uniform " by passing a thick piece of " wood with one *straight-* " *edge* backwards and for- " wards upon the iron bars. " Upon this surface, while " still in a semi-fluid state, I " usually sift fine hot gravel, " which *I beat into the mastic* " with wooden stampers. " When the mastic is set *the* " *operation is repeated* until " the surface required for the " way or path is covered. " As the operation proceeds " the surface of the cement " already set *renders the use* " *of one of the iron bars* " *unnecessary*."

" suitable material to form a " plastic compound, using " about the following pro- " portions: one part, by " measure, of cement; one " part, by measure, of sand, " and from three to six parts, " by measure, of gravel, with " sufficient water to render " the mixture plastic; but I " do not confine myself to " any definite proportions " or materials for making " the concrete composition. " While the mass is plastic " I lay or spread the same " on the foundation or bed " of the pavement, either in " molds or *between movable* " *joists of the proper thick-* " *ness*, so as to form the edges " of the concrete blocks *a a*, " one block being formed " after the other. *When the* " *first block has set* I remove " the joists or partitions from " between it and the next " block to be formed, and " then *I form the second* " *block*, and so on, each suc- " ceeding block being formed " after the adjacent blocks " have set."

This quotation from the Claridge patent shows that the Schillinger process of laying the sections is very old, and it will be seen further on that appellant uses this Claridge method identically, in laying flag walks and malt floor, and the same with his added patented improvements, in laying " diamond " walks.

Appellant's expert, page 91, compares this Claridge description with Schillinger's as follows:

"The Claridge patent describes a method of forming " a concrete pavement by spreading the plastic mass of " concrete between flat iron bars to form the first block, " and when the first block is set one of the bars is moved " along and a fresh lot of concrete is poured between it " and previously formed block, and so on. This is " exactly the method described by Schillinger for forming " his pavement, except that no tar paper is used between " the blocks, and the pavement, when done, is exactly the " Schillinger pavement, with the exception of the tar " paper."

Claridge shows that the art in 1837 covered laying concrete pavement in sections in the place where they are to be used; laying the sections between bars or joists; using a finished block as one of the guides or bars; leveling the surface by a straight-edge, and forming these blocks upon a prepared foundation.

Schillinger's pavement is the identical Claridge, with the sole difference of the strips of tar paper interposed between the blocks to make the joints water tight.

Appellees' expert, understanding that the tar paper strips are no part of the Schillinger improvement, on page 203 defines the differences between Schillinger and Claridge to be differences between their respective compositions.

The following is quoted from page 217, where the

question sums up the outcome of previous cross-questions:

C. Q. 41—Schillinger spreads his mass on the foundation, and Claridge does the same. Schillinger spreads it between two strips, and so does Claridge. Schillinger waits until the first mass is set before proceeding with the next operation, and Claridge does the same. Schillinger provides for the removal of the strips, after the first mass has set, before laying the next block, and Claridge states that the setting of his mass renders the use of one of his bars unnecessary, and you have stated in substance that both Schillinger and Claridge could use a number of strips or bars as a modification. Is it on these grounds that you find no similarity between the Claridge process and the Schillinger process in contradiction to the finding of Mr. Bates in considering these two patents?

A.—No. I do not remember having stated that I find no similarity between any particular steps in the two operations. What I have stated is, as far as I can remember, that in the Claridge patent I do not find the invention shown and described in the Schillinger patent and referred in the claims of the same, and I have given my reasons for this statement.

C. Q. 42—So far as the steps named in the preceding question as being found in the Claridge and Schillinger patents, and as modified by you in respect to the use of the strips or bars, the several steps named in both patents and set forth in the preceding question are the same, are they not?

A.—*They are the same, except that Schillinger takes concrete and Claridge mastic cement or composition.*

The Schillinger *patent* makes material *immaterial, and tar-paper essential.* The finding of the expert is, therefore, fatal to the patent.

This Claridge patent narrows Schillinger's down to his "tar-paper joint," as there cannot be any question as to the fact, that, if Claridge had interposed any separating material between his sections or blocks, the two patents would have been identically alike, as the Claridge mastic or composition can be as well used under the Schillinger patent as a concrete composition.

The English patent of 1839 to D'Harcourt is for an improved artificial granite stone, marble or *concrete*.

This patentee states, p. 57, that:

"The mode of applying this composition so as to pro-
"duce an artificial marble suitable for tesselated or other
"pavements is as follows: The ground or floor upon
"which it is intended to lay the pavement being duly pre-
"pared, the whole surface is to be covered with a first
"layer or foundation of the artificial marble composition,
"of about one-fourth of the entire thickness of the intended
"pavement. The design or pattern desired to be given
"to the pavement is formed in zinc or tin moulds or
"frames of three-fourths the depth of the first layer or
"foundation, and these moulds or frames being placed
"upon the first layer or foundation, the fluid composition
"prepared as aforesaid, is to be poured into them. As soon
"as the contents of one set of patterns or designs *is hard*
"*and dry the metal frames or moulds are to be removed*
"and a further portion of the pattern proceeded with, and
"*so on to the outer board or edge of the piece of pavement*
"or parquetry to be formed. The surface of pavement so
"formed, being perfectly dry and hard, may be ground
"and polished in the same way that natural marbles are
"polished. When the surface is made perfectly smooth,
"and to the eye perfectly homogenous a varnish of gum
"lac may be passed over it. The artificial marble,

" whether employed for pavement or other purposes, will " be, to a certain degree, *of the colors of the materials* of " which it is composed, but in every case the appearance " will be, more or less, that of a natural marble."

This patent discloses a method of forming tesselated or other pavements, by the use of zinc or tin molds, into which the fluid composition is poured, and after becoming hard and dry removing the frames or molds and proceeding with a further portion.

Appellant's expert p. 91, compares this patent with the Schillinger, as follows:

" The D'Harcourt patent describes a method of forming a pavement of detached blocks, as follows:

" Molds or frames of zinc or tin are formed in the " shape to be given the blocks. A set of these molds " being arranged on the foundation, the plastic concrete is " poured into them. When the concrete is set the molds " are moved into position for the next set of blocks, which " are formed in the same manner, and so on. This method " is identical in principle with the method described by " Schillinger, except that there is no tar paper between the " blocks, but the joints are left open, and the D'Harcourt " pavement is a concrete pavement laid in sections, which " can be taken up and relaid without disturbing the " adjoining sections."

The only points that appellees' expert can make against this patent, as failing to be an anticipation of the Schillinger patent, are, that it is not for a concrete pavement, and that it " is not intended to have even the appearance of detached blocks."

As before stated, Schillinger does not limit himself to concrete; and appellant's floors and flags do not, until marked, even have the appearance of detached blocks;

while D'Harcourt does state that his improvements can be worked with concrete.

Concerning the removability or freedom of the blocks, appellees' expert, page 222, testifies as follows:

C. Q. 71—"After D'Harcourt has removed his metal "frames or moulds from around one set of patterns or "designs, as provided for by him, what would be the "condition of those patterns or designs as to being free?

A—'I think they would be free.

C. Q. 72—"If the next set of patterns or designs "were laid adjacent to the first set and after becoming "hard and dry and having the frames or moulds removed, "what would be the condition of the two sets of patterns "in relation to each other as to being joined or free at "their adjacent edges?

A.—"They would then be free at their edges and "would not be what is described in the D'Harcourt pat-"ent; they would not present the homogenous surface as "described in the patent."

As D'Harcourt fills these spaces with the polishing dust, while Schillinger fills them with tar paper or its equivalent, the margin between these two patents is exceeding narrow, as it is the difference between loose dust and tar paper in the joints.

The English patent to Chesneau of 1852 is for the manufacture of an indestructible paving, composed, among other things, of Roman cement.

This patentee, page 52, makes the following statement:

"The apertures made in the roads for the purpose of "placing gas and water pipes always occasion much dis-"arrangement to all sorts of paving. My system *would* "*be open to the same disadvantage*, for it would be neces-

" sary to break it and melt it again in order to replace it. " *To avoid that difficulty* I have made wooden panels " from two to two and a half inches thick. I unite sev- " eral of them together with wooden bars nailed. Those " panels will be three feet long and two feet wide (more " or less). I bind those panels with iron bands and " screws. Those bands are wide enough to admit of a " portion projecting beyond the surface of the panel, " according to the thickness of the paving. The other part " of the width is fixed upon the side of the panel.

" *That iron band is to contain the matter constituting* " *the paving*, which I place on the surface of the said " panel of the thickness (more or less) and *beat down* in " the manner already specified."

Appellant's expert, page 90, compares this Chesneau pavement with the Schillinger as follows:

" The Chesneau patent describes a pavement made of " plastic material formed in blocks, which can be taken up " separately without disturbing adjacent blocks. This " separate taking up is one of the features described by " Chesneau to permit of getting at gas and water pipes. " To this end Chesneau forms his pavement as follows: He " takes wooden panels and binds them around with iron " bands, so as to form a sort of box with iron sides " and wooden bottom. A number of these boxes are " arranged together and filled with plastic material, and " constitute the pavement. This is not exactly the same " as the Schillinger pavement, but it is a concrete pave- " ment laid in sections or detached blocks and having " *sheet-iron arranged in the joints between the blocks.*"

Appellees' expert, p. 204, does not find the Schillinger improvement in this Chesneau patent, because he does not find the blocks laid in the *manner shown and*

described in the appellees' patent, and because he does not find *any tar paper in the joints*.

The iron strips remain between the joints in the completed pavement, and, as Schillinger says, " While the mass " is plastic I *lay* or spread the same on the foundation or " bed of the pavement, either in *molds* or between mova- " ble joists," he clearly contemplates laying previously formed blocks upon the foundation, so that the difference between Chesneau and Schillinger is the difference between *iron* strips and *tar paper* strips placed in the joints or *between* the blocks, and it limits the patent to what Schillinger calls " the tar paper joints," concerning which he says: " The paper constitutes a *tight water-proof joint*."

The Schillinger patent is thus limited to a pavement joint in which tar paper, or some equivalent expansive water-proofing material, is used, as this patent shows sheet-iron in the joints, and the D'Harcourt patent shows loose marble dust in the joints.

The English patent to Coignet of 1855 is for certain improvements in the use and preparation of plastic materials or compositions to be used as artificial stone or as *concrete* or *cement*, for building and other purposes. The patentee, page 65, states as follows:

" The improvements relate to the production of *arti-* " *ficial stone*, *concrete*, *or cement* from *various combinations* " of *sands*, *gravels*, *broken flint*, *broken stone*, burnt or " unburnt soil more or less clayey, cinders, and coal refuse, " scoria, wood ash, dross and residue of metallurgical " works, natural or artificial puzzolanas with unctuous *or* " *hydraulic chalk*, very *fine sand*, such as that of downs " and heaths, or a silicious one, similar to that of Fon- " tainebleau and Montmòrency, in France, and in the " employment of such matters, when compounded in the

" formation of houses and other buildings, *cellars, vaults,* " raised walls, arched and horizontal platbands, forming " the upper part of all bays, doors, and windows, roofing " in the form of earth-works, platforms, and *flaggings, of* " *one or many colors,* * * *platform and flagging* " *for workshops and yards,* etc., hydraulic and *road works* " *of every description,* sewers, aqueducts, bridges, cul- " verts, viaducts, dykes, dams, sluice-gates, canals, water- " reservoirs, etc. The matters to be mixed are pounded " together, *and when used the desired forms are given by* " *molding and compression on the* wall or other *formation* " and *repeating* the *operation till the structure desired is* " *obtained,* the whole without brick or stone facing, and " without wanting to use any coat."

Coignet, page 66, gives three forms of making his concrete, as follows:

" 1st. I compose the concrete of sand, grits, metals, " and broken stones, to which I add a certain proportion " of more or less clayey but crude (that is to say, unburnt) " soil, the whole being mixed with a *certain proportion* of " ordinary or *hydraulic lime.*

" 2nd. I compose it also of sands, grits, metals, " and broken stones, with cinders and scoriæ of coals and " metals, of more or less clayey earth, but burnt, and " with natural or artificial puzzolana, adding these various " materials either jointly or separately and mixing to " the whole a *certain proportion of* ordinary or *hydraulic* " *lime.*

" 3rd. I compose it also with very *thin sand* (such " as landes, downs, sea sands, sands similar to those of " Fontainebleau and Montmorency, marly or clayey sands), " with addition of coal or metal cinders and scoriæ, " more or less clayey soil, but burnt, natural or artificial

" puzzolana, and especially, if necessary, of marly or clayey " but burnt sands, the whole being mixed either jointly " or separately with a certain proportion of ordinary *or* " *hydraulic lime.*

Coignet, p. 67, provides for laying his concrete as follows:

" When the concrete is perfectly pounded and has " the appearance of a very thick paste I cast them in a " mould established on the wall itself, or on the place where " a work of masonry is to be built, and either above or " under the ground. The mold has in the interior the shape " of the intended part of building. I cast thin layers of " concrete into this mold established on the wall, and I " mould, ram, or pile up, agglomerate, and compress it by " the repeated percussion of some hard and weighty body. " When the mould is filled, I disjoint it and bring it to any " other place to fill it again. The mould can also be left " filled, if thought necessary, and only disjointed after the " concrete has become hard in the mould."

This language refers to the use of concrete for building purposes; but on page 67 he continues as follows:

" In these buildings are comprised specially any con- " structions to be used as habitations of any size, form, " and destination; also of cellars with their vaults. The said " cellars, being built of concretes erected with full walls " and without openings, by means of general floors, also " of concrete, and established on the whole area of the " proposed building, are consequently wholly tight and " inaccessible to the outward water. Also *any other floors* " *of moulded concretes to replace everywhere the brick pave-* " *ments, flag-stones,* shingles, and compartment ceiling;" and on page 69 he adds as follows:

" My concrete or plastic material and the manner of

" using the same can be applied * * * to al
" the workshops, floorings, walls, and passages; also to any
" shed, docks, or warehouse; * * * to all
" *ordinary road-works*, such as retaining walls, bridges,
" culverts, tunnels, parapets, *pavement, floors covering the*
" *road.*"

Appellant's expert, p. 91, compares this Coignet patent with Schillinger as follows:

" The Coignet patent describes pavements, walls and
" other structures composed of concrete formed of cement
" or hydraulic lime and sand and gravel. The particular
" method of applying this concrete is not described, but
" the patent speaks of molds which are filled, and, when
" the concrete is set, are disjoined and moved and filled
" again. This method is evidently somewhat similar,
" when used in forming pavements, to the method described
" by Schillinger, and *the material used* by Coignet *is iden-*
" *tically* the material used by Schillinger, and is the ordi-
" nary cement concrete at the present day."

The English patent of 1856 to Haichois, p. 53, is for certain improvements in paving.

Appellant's expert, p. 90, compares the Haichois English patent with Schillinger's as follows:

" The Haichois patent describes a concrete pavement
" laid in the following manner:

" A foundation of concrete is first prepared, then
" strips of vulcanized rubber or other analogous substance
" are arranged on the foundation so as to form squares or
" lozenges. These strips are secured either by iron ties or
" by beveling the lower edge and pressing it into the foun-
" dation bed. The plastic mass of concrete is then spread
" on the foundation and between the strips so as to be
" flush with their tops, and this constitutes the pavement.

"This Haichois pavement is a concrete pavement laid in "blocks and having India rubber or analogous material "such as tar paper, for example, between the blocks. "This differs from the Schillinger in being made of asphalt "concrete instead of cement concrete, which difference "I consider entirely immaterial, and also in the use of "glue between the India rubber or tar paper, or whatever "is used, and the concrete blocks. This is simply an "addition to the Schillinger pavement and not a departure "from it, and simply insures the joint being tight. The "Haichois patent, therefore, in my opinion, contains the "Schillinger invention, as set forth and claimed in his "second claim, which is for the arrangement of tar paper "*or its equivalent* between adjoining blocks of concrete; "but inasmuch as it does not describe the particular "method of laying the pavement and interposing the tar "paper described by Schillinger, it does not contain the "invention of Schillinger's first claim, which relates to the "method of laying the pavement and interposing the tar "paper."

This patent shows the interposing of strips between the sections or blocks of a concrete pavement, to be old in the art, and shows also the putting in of such strips during the process of forming the pavement, and does, therefore, anticipate the first claim as well as the second.

Appellees' expert, p. 205, fails to find the supposed Schillinger improvement in this patent, because of the *materials* used in the formation of the pavement, and because *tar paper* is not the material interposed in forming the joints.

The United States patent to Russ, of March 14th, 1848, is for certain new and useful improvements in car-

riage-ways and roads. On p. 71, the patentee, after defining the position of the sewer-pipe and branches, and stating the use of metal or *wood frames* for forming a panel or panels over such sewer-pipe, says: "Then a proper set "of open wooden shallow vats are to be prepared for mix- "ing in them what is now well known by the technical "name of '*concrete*,' namely, a mixture of mason's chips, "broken stone, *hydraulic cement*, clean sand (not salt "beach sand), and fresh water, in such proportions as the "quality of the cement will require to form a sound foun- "dation, B, above the subsoil A, that will in a short time "become an *artificial flag or slab* of rock about eight or "ten inches thick to bear the pavement above;" but, before the mixture is placed into the panels or sections, Russ provides for placing bars in the panels to receive a ring or rings by which the panels can be raised. He then continues as follows:

"The concrete is then to be filled in and consoli- "dated, after which it may be lifted out of any panel or "section as may be required by shears or derricks "placed above, with tackles hooked into the rings *e e* in "the panel, the inverted wedge-formed portions of the "frames *d d allowing each panel of cement to be freely* "*lifted out* and placed on one side while access is needed "to the parts beneath, and receiving the panel of cement "in replacement again when the access beneath is no "longer needed."

"*The gutter stones f, and hub stones g, and flagging* "*of the sidewalks D may all be laid of paneled and* "*divided sections of concrete in the same manner and with* "*the same advantages and effects*, but in the drawing the "roadway only is shown thus prepared and fitted."

Van Camp's patent of July 27, 1869, is for a pave-

ment in which asphaltum is used instead of concrete. Concerning this patent appellant's expert, p. 91-2, testifies as follows:

"The Van Camp patent describes a pavement made "of asphalt concrete which in certain situations is *laid in* "*separate blocks* or sections which *can be taken up* for "purposes of repair. In some cases the blocks are laid in "molds, the molds remaining as a part of the pavement, "in which case the blocks of concrete have a *foreign sub-*"*stance in the joints between them.*"

Prior Unpatented Art.

Schillinger, p. 227, testifies that he first conceived the invention set forth in the patent in August, 1869. On p. 229, he states that his first work was a specimen made in the shop, and that he laid no sidewalk in that year, but laid some floors for brewers, and that he laid his first sidewalk in the spring of 1870, and that he had knowledge of the use of concrete *for floors* about 1849. Did not lay it himself, but saw others mix it without paying particular attention to it.

Charles Row, p. 162, testifies to laying a malt floor in Baltimore, twenty-five years ago, in the same manner in which he laid such floors in Germany, which manner he sets forth on pp. 161-2, as being by the use of a scantling, filling in, and moving scantling back, using nothing in the joints, the practice being essentially that used by appellant, laying in one solid mass except when the natural joint came where work was stopped at night. P. 63, he produced two old parting strips that were thirty-five years old.

Michael Botzler, p. 177, testifies to laying a malt floor in Huck's brewery, Chicago, in July or August, 1869, by using a scantling and an interposed strip, which strip was

taken out and the space between the blocks filled with fine material; and this practice he has continued more or less every year since, laying another floor for the Downer & Bemis Company in this city, that same year, 1869.

Botzler, pp. 177–8, also describes a method of using thin strips of wood, just the same as Schillinger uses the tar paper, by placing them against the edge of the section when the joist is withdrawn, to hold the edge up, and building the next section against these thin strips instead of against the unsupported edge of the finished block. The only difference between Botzler and Schillinger is, that Botzler takes his thin strips out, and fills the space with cement, while Schillinger leaves his strips in as a part of his complete pavement.

We have, from this showing of the unpatented art, a knowledge of the practice of using concrete for floors as early as 1849 by the inventor; a knowledge of such practices and an actual laying of such floor by Charles Row in 1858 or 1859, the practice being essentially the same as appellant employs; a knowledge of such practice and an actual laying in 1869, prior to Schillinger's best date for experimenting, and a continuation every year since by Michael Botzler, the practice being the same as Schillinger, unless Schillinger is confined to his special material, tar paper; as Botzler used a fine material made of sand and cement, to fill the spaces between the blocks or sections.

The law relating to prior use is stated by this court in *Railway Co.* v. *Sayles*, 97 U. S. 561, as follows, when referring to two old cars that went immediately out of use, the court says:

" But their construction and use, though with limited " success, are sufficient to show that Thompson and Bach-

" elder were not the pioneers in this field of improvement, " and that they were not the originators of the double " brake, nor of the use of rods, chains, and similar " appliances for connecting the brake systems of two " trucks under a car. They invented a particular apparatus " for doing the desired work; and *they can only claim* " *their particular apparatus*, or that which is substantially " the same "

Wadsworth, pp. 587–8, states, that it was old to lay flags of natural stones which were equal in length to the width of the walk, and to calk the joints with oakum to make them water tight.

These instances of prior use were not set up in the answer, and they do not show any use of tar paper interposed between sections or blocks during the process of formation, but they are admissible under the following authorities:

" Evidence of the state of the art is admissible in ac- " tions at law under the general issue without a special " notice, *and in equity cases without any averment in* " *the answer* touching the subject. It consists of proof of " what was old and in general use at the time of the alleged " invention. It is received for three purposes, and none " other,—to show what was then old, to distinguish what " was new, and to aid the court in the construction of the " patent."

Brown v. *Piper*, 91 U. S. p. 41.

See, also,

Vance v. *Campbell*, 1 Black, 427.
Agawam v. *Jordan*, 7 Wall. 583.
Blanchard v. *Putnam*, 8 Wall. 420.
Slawson v. *Grand Street R. Co.*, 107 U. S. 649.

In arriving at a determination of the novelty of a patented device, courts take judicial notice of common knowledge and use.

McCloskey v. *Dubois*, 20 O. G. 1,086.
Terhune v. *Phillips*, 99 U. S. 592.
Brown v. *Piper*, 91 U. S. p. 43.

It is competent for the court to pass on analogous or double use as a matter of law.

Gill v. *Wells*, 22 Wall. 29.

The attention of the court is called to the common practice of setting stone flags for sidewalks, calking them to make water-tight joints, and to the setting of all sorts of dressed stones, tiles and bricks in cement, and to the setting of them so that any one piece can be taken up.

The common knowledge and practice in the art of laying wood pavements, flagstone, and other walks, has been for many years to make the joints water-tight by means of tar, oakum, and other material, and, under the authorities above cited, judicial attention is called to this common and well-known practice, to show that the making of a water-tight joint in one class of pavements is but analogous or mere double use, and therefore not patentable.

The showing of the prior art leaves the supposed invention to stand on a selection of the material, and on this construction there can be no invention, and from this showing we find the following points with reference to concrete pavements, floors and sidewalks.

1st. That it was old to prepare all sorts of foundations.

2nd. That it was old to form pavements and sidewalks with detachable blocks, sections and flags.

3d. That it was old to form them in various ways in sections, blocks or flags on the foundations where they were to remain for use.

4th. That it was old to form them into sections by the use of bars or joists for flagging blocks, and to level them off with a straight-edge.

5th. That it was old to form them of the material described by Schillinger.

6th. That it was old to form them by the use of a great variety of materials or ingredients.

7th. That it was old to form blocks or sections *in situ*, by the use of molds.

8th. That it was old to form them in molds, which were to remain in the pavement as a part thereof.

9th. That it was old to form them with interposed thin strips between the sections.

10th. That it was old to give them such a construction than any block could be taken up without disturbing adjoining blocks.

11th. That it was old to form them in blocks, the boundaries of which were to be determined by shrinkage, the cracks which follow the seams of the sections laid at different times.

12th. That it was old to make them tesselated, or to make the blocks of various colors.

13th. That it was old to form them in imitation of flags, marble, or tile.

14th. That it was old to construct them by the identical method used by the appellant in making flags and floors, and for diamond blocks, except as to the improvements patented to him.

15th. That it was old to construct them by the method or process described by Schillinger.

From the showing here made of the older art, it very clearly appears that the *prima-facie* construction of the patent as contended for by the appellant, is the true one, as it fully appears that Schillinger has not the merit even of interposing strips of material in the joints between the blocks forming this kind of pavements.

It further appears from this consideration of the older art, that all that Schillinger has done is to select from the various materials which may be used for this purpose, tar paper for the purpose of making the joints water tight, and thus making the pavement water proof. If he has added anything to the art at all, it is simply and solely the feature of making an old concrete pavement formed in sections, or blocks, non-leaking at the joints, by the interposition of some contractile and expansible material which will continue to fill the joint under heat, cold or drought, and not expand injuriously under the effects of water, while it is sufficiently soft or yielding to allow the blocks themselves to expand or contract.

The conclusion as to the true construction of the appellees' patent, to which we are driven by this consideration of the older art, corresponds identically with the patent itself when the disclaimer is given the force and effect that belongs to it, for we then find that *making the joints of the pavement non-leaking, or water-tight, by the insertion of strips of tar paper "while in process of formation,"* is all that Schillinger ever claimed, except for the time intervening between the reissue of his patent and the filing of his disclaimer.

Appellees, however, repudiate this construction, as upon it they have no case against the appellant, and without attempting to ascertain or define the scope or bounding of their patent, they insist that appellant's pavement,

which has no organized joints, and no separate blocks or sections, except as the shrinkage of the portions laid at different times, opens out seams after a lapse of several months, while none are made in process of formation. Appellant's pavement is jointless and seamless. Under appellees' contention, their patent comes clearly within the reasons and findings of this court in the pavement cases of—

Guidet v. *Brooklyn*, 105 U. S. 550.
Phillips v. *Detroit*, 111 U. S. 604.

Disclaimer.

The purposes and effect of a disclaimer are sufficiently stated by the authorities cited.

Disclaimers and other limitations imposed by the Patent Office, forbid any subsequent enlargement, whether by reissue or by a broad construction of claims thus intended to be limited.

N. Y. Belting and Packing Co. v. *Sibley*, 15 F. R. 386.

A reissued patent cannot be enlarged by construction.

Tyler v. *Welch*, 3 F. R. 636.

Disclaimer can add nothing to a patent, it can take from that which has been described as the invention, and claimed as such, so as to be covered by the grant of the patent; but it has no office to make the patent cover anything, however clearly shown therein, which has not been described and claimed as part of the invention.

White v. *E. P. Gleason Mfg. Co.*, 17 F. R. 159.

"The disclaimer, *when recorded*, becomes a part of "the original specification, and must be taken into account

" in construing the patent, and in ascertaining the rights of " the parties to the suit."

Dunbar v. *Myers*, 94 U. S. p. 193.

Such construction of a claim as will render a disclaimer nugatory must be essentially wrong, and cannot, therefore, be accepted.

Atlantic Co. v. *Hulings*, 21 F. R. 519.

" A disclaimer can be made only when something has " been claimed of which the patentee was not the original " or first inventor, and when it is intended to limit the " claim in respect to the thing so not originally or first " invented. It is true, that, in so disclaiming or limiting a " claim, descriptive matter on which the disclaimed claim " is based, may, as incidental, be erased, in aid of, or as " ancillary to, the disclaimer."

Union Cartridge Co. v. *U. S. Cartridge Co.*, 112 U. S. p. 642.

In this patent the new first claim was not disclaimed, nor was any part of either of the claims disclaimed out. The parts disclaimed were those referring to shrinkage joints, by reason of the non-adherence of one block to the other, and the filling up of the joints with something other than tar paper, and the limitation upon the patent is as follows:

" Your petitioner hereby disclaims the forming of " blocks from plastic material, without *interposing* any- " thing *between* their joints, *while in the process of* " *formation.*"

When this disclaimer is applied, it will be seen that shrinkage joints, which are the appellant's joints, are disclaimed; and, also, that the interposition of tar paper, or its equivalent, is not claimed, unless said interposition

between the blocks is made *during the process of forming the pavement.*

Reissue.

The patent never, at any stage, contained any provision for *controlling* the cracking of shrinkage joints; and the original patent never contemplated anything other than the interposition of some positive substance between the blocks, which should prevent adhesion during the process of formation, and which should remain a permanent part of the completed pavement.

If the patent will bear the construction placed upon it by the appellees, and is now a patent which covers shrinkage joints, trowel markings, or what the appellant is making, we insist that the reissued patent is for a different invention from that shown or described in the original patent. The interposition of tar paper *between* the blocks was what he described and claimed. Anything beyond this is such an expansion as renders the reissued patent void, for the reason that it is not then for the invention described and claimed in the original patent.

In view of the fact that no such invention as would include appellant's pavements was ever described in the original patent; and, in view of the fact that Schillinger disclaimed shrinkage-joints, disclaimed pavements in which there was nothing interposed between the joints, and disclaimed every process of making pavements, except where strips of tar paper, or their equivalent, were interposed "*while in the process of formation*," we do not see how the appellees can insist or contend that anything done by the appellant is an infringement of the Schillinger patent, nor how it is possible for such a reissue patent to be valid, if it has the scope which the appellees think it has.

II.

Error in Holding that the Patent was Valid.

The conclusion that the court erred in holding the patent to be valid, follows, as a necessary sequence from the showing of the prior art, just considered.

Claridge, in 1837, shows the identical process of laying, except the interposition of tar paper. D'Harcourt, in 1839, shows the use of molds *in situ*, leaving narrow spaces in the joints to be filled with the polishing dust or left unfilled. Coignet, in 1855, describes the same concrete laid in place by the use of removable molds. Haichois, in 1856, placed strips of wood or vulcanized caoutchouc in the joints of a similar pavement. Chesneau, in 1852, describes a pavement made in iron-bound panels, which bindings remained in the pavement. Russ, in 1848, proposed to lay concrete sidewalks in divided panel sections with wooden borders.

The prior art thus shows concrete, or artificially formed blocks, with loose material, wood, vulcanized rubber and iron bands in the joints, or interposed between adjoining blocks; and the wood and rubber interposed "while in the process of formation."

Schillinger's invention is narrowed down to the use of tar paper without equivalents, and if interposed wood, iron, vulcanized rubber or surface scrapings are equivalents, then there is nothing left for Schillinger.

At the best, the patent is only carrying forward an old idea in a slightly different way, without better results; for Hall, page 625; U. P. Smith, page 604, and Hurlbut, page 629, agree that tar paper is worthless, while Smith and Hurlbut consider it a positive injury. This testimony

is uncontradicted, so that the supposed improvement clearly comes within the rule of this court stated in—

Smith v. *Nichols*, 21 Wall. 112.
Roberts v. *Ryer*, 91 U. S. 159.

The supposed Schillinger invention is unpatentable, as it clearly comes within the ruling of this court in

Hollister v. *Benedict*, 113 U. S. 59.

III.

Error in Holding that Appellant Infringed.

The burden of proof on the question of infringement is on the appellees who were the complainants below, and their proofs on this branch of the case are singularly meager and uncertain. They do not attempt to define what their patent means, what it covers, which claim is infringed, or how the appellant has infringed either claim; they only proved that he made some concrete pavements, which were marked on their surfaces. The court below would have been justified in dismissing the bill for want of proof on this subject. However, what the appellant has been doing appears from his own proofs, and his *process of making* which is outside of the patent, is shown by the depositions of Salisbury, p. 29, and Perkins, p. 31.

The record shows that appellant has been doing three kinds of work: first, laying malt floors; second, flag sidewalks; and third, diamond or tesselated sidewalks. How, why, or wherein, either of these three kinds of work infringes the complainant's patent, is not shown, described, or pointed out in appellees' record. The court is left to guess, or find out the best it can, as to what is complained of, and wherein the appellant has infringed.

We have seen that the patent, if valid, is, upon its face, and by the prior art, limited to pavements having

strips of tar paper, or its equivalent, interposed between the blocks during the process of formation. There is a disposition to make this word "interposed" cover a great variety of things. The meaning of the word "interposed" is "placed between," and that the word is used by the patentee in its ordinary sense, appears from the specification, and particularly from the drawing. In the specification the patentee states that, when he has finished one block, he lays a strip of tar paper along its edge, and forms the next block against such strip of tar paper, and so on until the pavement is completed. The drawings show that the strips of tar paper extend *from the bottom to the top*, so as to form a complete separation between the blocks for their entire thickness or depth. Appellant's expert is of the opinion that the disclaimer prevents the patent from covering any pavement in which there is no foreign substance in the joints, and that the pavements in which there is no such foreign substance do no infringe the patent. (*Ans. 99, 100, p. 226.*) On their own exposition of the patent, its owners have no case against the appellant.

The practice of the defendant in making flag pavements is fully stated by Mr. Bates, p. 92, as follows:

"I have observed the defendant's method of laying "concrete walks. This method was as follows: A founda- "tion was prepared of sand; joists were then placed so as "to leave a space between them of the size of the first "block. The mass of concrete, composed of cement, "sand, and gravel, was spread on the foundation between "the joists and rammed down; the upper half inch was "formed of cement and sand without gravel, so as to "give a smooth surface. When the block thus formed "had set hard enough to stand, one of the joists was

" moved along, and a second block formed between it and " the first one, and so on. Each block was formed right " up against the previously formed block, with nothing in " between them, so that, when finished, a pavement looked " like one solid block. *The process is identically to that* " *of the Exhibit Claridge Patent.* In order to give the " pavement the appearance of flagging, while still new, it " was marked with a trowel. This marking was done as " follows: A straight edge was laid across the pavement, " as nearly as possible over the edge of the blocks, and a " mark made with a trowel; the straight edge was then " removed, and a slight V-shaped depression about an " eighth of an inch deep made on the mark. This was " done simply to give the pavement *the appearance of* " *flagging* while it was new, and until the joints began to " open from shrinkage, which they would *do in the course* " *of two or three months.* I have seen pavements in which " the marking was evidently done by pressing a cord into " the concrete before it was hard."

There is no conflict in regard to appellant's process, as this statement fully agrees with that made by appellees' witnesses, Salisbury and Perkins, in the *prima facie* testimony, pp. 29 and 31.

Appellant's expert talks about *concrete*, and objects to certain old patents because they are for pavements which are not made of the special concrete named by Schillinger; but as such concrete for such purposes is older than the Christian era, it is difficult to understand how any of these matters can affect the appellees' patent, and, especially so, as Schillinger, knowing the great age of the concrete, and having seen it as early as 1849, specifically states that he does not confine himself to materials of any kind.

The term concrete does not technically cover either what the patent describes or what appellant uses. The term is used in the patent in its ordinary sense of covering any plastic composite substance which becomes hard, either by lapse of time or by parting with its heat.

Materials cannot be monopolized by patents, and, unless there is some invention in the material itself, it cannot be used to distinguish one article or thing from another. *The question to be determined is, has the appellant placed tar paper or its equivalent in the joints of his pavement*, and not what materials he used, or what process he used in making his blocks or his pavements.

There is considerable talk about upper and lower courses, finishing sections, etc.; but it will be observed that all of this is entirely outside of the patent. There is not one word in the patent describing or intimating that there is anything used except a single course, homogeneous from top to bottom.

The three kinds of concrete work done by the appellant, are malt floors, flag walks, and diamond or small block walks.

The malt floors are made by using strips or bars, 2 by 2½ inches, in cross-section, placed on a wooden floor and spaced for the amount of work that is to be performed at a single operation. When the first section is finished, the strips are moved about four feet; the finished edge to be abutted is nicked or broken down with a shovel, *to prevent the formation of a joint* of any kind between the sections, as far as possible, the object being to make the floor continuous and jointless; the next section then laid in the same manner, and so on.

J. Miller, pp. 105–6.
Witt, pp. 122–3.

Pietsch, p. 130.
Hurlbut, pp. 133–4.
K. Miller, pp. 167–8

The flag walks are laid the same as the malt floors, except that the seam line is not "broken down," and instead of this breaking down, a board having a "V"-shaped edge or a trowel is pressed into the top along the seam line, from one-eighth to one-sixteenth of an inch deep.

Hurlbut, p. 145.
Bates, p. 93.
Salisbury, p. 29.
Perkins, p. 31.

The "diamond block" walks are laid by the use of "V"-shaped or half-diamond frames for forming the blocks. On the top of the finished blocks at their outer edges, wooden strips with rubber linings are laid to keep the finishing colors from spreading or mixing. These top strips have two little hooks about an inch wide, with about a half inch projection, to keep the strips from slipping back while striking off with a straight-edge. The new blocks are formed directly against the finished ones, without anything of any kind between them.

J. Miller, p. 103.
K. Miller, p. 168.
Salisbury, p. 29.
Perkins, p. 32.

Appellant did not place tar paper on any other material of any kind in the joints.

Perkins, p. 32.
J. Miller, pp. 103-4.
Pietsch, p. 130.

Hurlbut, p. 138.
K. Miller, p. 168.
Bates, p. 95.

The appellant's diamond pavement is entirely different from anything described or claimed by Schillinger.

Bates, p. 95.

Hurlbut's strips with hooks are not the same thing as strips of tar paper.

Salisbury, p. 30, A. 18, 19.

The diamond pavement is all solid at first. There are no joints in it.

J. Miller, p. 110.
Hurlbut, p. 157.
K. Miller, p. 170.

The bev eled blocks are used by Hurlbut in his block pavement, so that *blocks cannot be taken up* except by beginning at the outer edge or border.

Hall, p. 196.
Hurlbut, p. 137.
J. Miller, p. 111.

The special V-shaped frame, the rubber-edge color-parting strip, and the beveled blocks used by Hurlbut, are of his invention, and were patented by him April 20, 1875.

Exhibit Hurlbut Patent, p. 84.

The use of a parting strip for seam lines, without rubber, is older than Schillinger's invention.

Botzler, p. 178.

The V-shaped trowel marking is simply for controlling the contour of the cracking.

Salisbury, p. 29.

The cracking takes place in the course of *two or three months after* the pavement is laid, or at a longer period than that.

Bates, p. 93.
J. Miller, p. 119.
K. Miller, p. 174.
Hurlbut, p. 138.

Hurlbut, p. 142, says that he was at one time employed by one of Schillinger's licensees, and that he was instructed to keep a separate account of the pavements which did not have anything in the joints, as they did not pay royalty on such pavements.

The seam controls the cracking or parting when the seam and mark do not correspond.

Hurlbut, p. 149.
Hall, p. 191-194.
Bates, p. 93.

The patent does not disclose anything concerning surface work or top finishing, and a crack formed in this manner most certainly is not a joint "with tar paper or its equivalent" interposed "during the process of formation," to make a water-tight joint the full depth of the pavement.

The disclaimer excludes all pavements where there is nothing interposed.

DuFaur, p. 226, A. 100.

Nothing is not the equivalent of tar paper.

It hardly seems necessary to repeat that no case of infringement has been made against appellant upon the record, or that no construction can be given to the patent which will make it cover appellant's work, that does not for the same reasons make the patent void.

Appellant's pavement " is exactly the pavement which Schillinger disclaims."

Bates, p. 93.

Appellant's process is identically that of the Claridge patent.

Bates, p. 92.

A mark cannot be the equivalent of an instrumentality; nor an act for a thing.

Adjudications.

Several suits have been brought on this patent. The older reported decisions which we have found are: first, *Schillinger* v. *Gunther*, 2 B. & A. 544; second, *same* v. *same*, 3 B. & A. 491; third, *The California Stone Paving Co.* v. *Perine*, 8 F. R. 821; fourth *same* v. *Freeborn*, 17 F. R. 735; and fifth, *Schillinger* v. *Brewing Co.*, 17 F. R. 244.

The first decision was by Shipman, J., in a contempt proceeding for the violation of an injunction previously issued.

The patent to Russ, and an English patent to Little, was the only showing of the older art made in this case, and the question was whether the interposition of strips of *tin foil* instead of tarred paper between the blocks, was such an equivalent as to bring the defendant within the terms of an injunction, and it was held that tin foil strips were equivalents. Judge SHIPMAN'S opinion of the patent, however, is found in his instruction to the master, which contains the following:

" At the final hearing of this cause, those concrete " pavements were adjudged to infringe on the plaintiff's " said letters-patent, which were laid in *detached* blocks or " sections, *between which blocks were arranged strips of*

" *tar paper* or equivalent material, and that to the pave-
" ments *of the above description* the said master's inquiry
" and report *should be confined.*"

In the second case (3 B. & A. 491), BLATCHFORD, J., held that the disclaimer practically disclaimed the first claim. His statement is: " The specification describes the " mode of making the blocks to be, to spread the plastic " mass on the bed of the pavement, 'either in moulds or " between movable joists of the proper thickness,' so as " to form the edges of the blocks, one block being formed " after the other, the joists or partitions between the " block first formed and the block next to be formed being " removed after the block first formed has set, and the " second block being next formed, 'each succeeding " block being formed after the adjacent blocks have set.' " *Nothing is claimed as new in respect to this mode of form-*
" *ing blocks of concrete pavement.* The sole claim of the " patent, left after the disclaimer, is this:

" 'The *arrangement of tar paper*, or its equivalent,
" *between adjoining blocks* of concrete, substantially as and " for the purpose set forth.'

" It was, therefore, *open to the defendant* to lay a " concrete pavement *in detached blocks* or sections, *by the*
" *use of moulds or movable joists or partitions, in the man-*
" *ner described in the plaintiff's specification.*"

This same case came up again (4 B. & A., 479) apparently on a question of costs, as the main question discussed is as to whether the disclaimer was filed in time, and the court, p. 484, held that it was because Schillinger did not find out until January, 1875, that, as a matter of fact, a pavement laid in blocks without interposing anything between such blocks was not such a pavement as he

might have supposed himself to have invented prior to that time.

The court also modified its opinion as to the effect of the disclaimer in its relation to the first claim.

In *California Paving Co.* v. *Perine*, 8 F. R. 821, SAWYER, J., in some way extended the scope of the patent to cover such pavements as were specifically disclaimed by Schillinger.

It is, however, hardly necessary to consider this case, as Judge SAWYER, in *California Paving Co.* v. *Freeborn*, 17 F. R. 735, reversed it, and held that marking or cutting the surface along the seam lines was not an infringement. His statement is: "*The forming of the block* "*against the pavement* is according to the specifications of "the reissue *subsequently disclaimed;* but it is claimed "that *running the marker* along the line between *the old* "*and new blocks on the surface*, for forming the latter, *is an* "*infringement*. I am not able to take that view. I have "gone as far in that direction as I think the patent will "justify. *I think in that particular it is not an infringe-*"*ment*."

In some of these cases the prior art was not shown at all, and in others only partly shown, so that, on the record in this case, they are not in point, except as to the *prima-facie* construction or meaning of the patent.

In *Schillinger* v. *Brewing Co.*, 17 F. R. 244, BLATCHFORD, J., refers to his former decision, 4 B. & A. 479 (17 Blatch. 66), and repeats his decision, that the disclaimer substantially took out the first claim of the reissue, and only left the second, which was the claim of the original patent. He refers also to Judge SAWYER'S decision, 8 F. R. 821. After stating Gunther's method of constructing pavements he says: "The only difference between this

" pavement and that in the Gunther case appears to be " that in this case there is an *open cut* made by a trowel " *entirely through both courses*, the line of the *cut* in the " upper course being practically over the line of the *cut* in " the lower course. In the Gunther case the trowel cut *was* " *only through the upper course.*"

This decision shows, and in fact states, that the suit was not properly defended. The court, after referring to the patents put in evidence by the defendant, says: "*No* " *testimony* is introduced by the defendant to point out " *wherein any of these patents are supposed to bear on the* " *invention of Schillinger.*"

These patents were put in without any evidence whatever on the part of the defendant, and under the rule stated in *Bishchoff* v. *Wethered*, 9 Wall. 812, the court might well have refused to consider them at all, and, in fact, did not consider them, as the decision shows, except in connection with the evidence of complainant's expert. BLATCHFORD, J., in this case re-states the effect of the disclaimer as leaving the claim to " be one for such a pave- " ment laid in detached blocks when free joints are made between the blocks by *interposing tar paper* or its equivalent."

In this decision some stress is laid upon the word " concrete." The court evidently overlooked the specific statement of the patentee, that he does not *confine himself to material*. Blocks made with asphalt, or with broken stone having asphaltum for its cement, or made of any of the various materials described by the English or American patentees, are just as much within the patent as those made by that class of concretes which are known as artificial stone.

If the patent is limited to *artificial* stone, then we see

no reason why brick and tile pavements should not be considered, and, if not, why pavements made of natural stones or flags are not really the same thing, as there is no reason why tar paper in the joints should be any more beneficial for after use with artificial stones than with previously formed natural stones. The only use of tar paper that is special to artificial stones is preventing adhesion while in the process of formation, and thus avoiding a reliance upon shrinkage for an uncertain joint to appear afterward.

His Honor, JUDGE BLODGETT, in delivering the opinion upon which the interlocutory decree passed, says, p. 19:

"I am free to say that, were the question before me an original one, not embarrassed at all by the prior decisions, I should have great doubts as to the validity of this patent on the ground of novelty. I should certainly think there was very little which was patentable in this device, but the rule of comity, it seems to me, should prevail," etc.

And, in his opinion, upon which the final decree passed, p. 26, he says.

"Counsel are well aware that I have often expressed my own views in reference to this patent; that, had the question been an original one before me, I would have been very reluctant, on the proof, to sustain the patent, but it had passed through other courts and been so generally sustained that I felt that the rule of comity, without which all patent property would become valueless in this country, required me to follow the rulings of the other courts."

It will be seen from this that the court had grave doubts as to the validity of the patent upon the showing of the prior art made in this cause; and, as this was the first case in which the prior art had been fully shown, we then thought, and still think, that the case was taken

out from any rule of comity; and that, even allowing the validity and scope of the patent as determined by prior adjudications, the court erred in holding the pavements which appellant had made, to be infringements, as no case had gone to the extent of holding that such pavements infringed.

Since the decision in this case, this Schillinger patent has been twice before this Honorable court; first, in *California Co.* v. *Molitor*, 113 U. S. 609. This case came up on a divided opinion in a contempt proceeding, the question being as to whether a pavement laid under the Hurlbut patent (exhibited in this cause, page 84) was laid in contempt of an injunction prohibiting the use of the improvements covered by the Schillinger patent. As the question presented was held to be such a question of mixed law and fact that it could not be properly determined upon such a division, or upon a proceeding for contempt, the court did not pass upon the merits of the case.

In the second case, *California Paving Co.* v. *Schalicke*, 119 U. S. 401, on page 404, the court states that:

"The only defense set up in the answer is non-infringement."

There was no showing in relation to the prior art, and the patent was considered as to its scope and meaning when the disclaimer was applied, and in relation to the prior Circuit Court decisions therein referred to.

The court below dismissed the bill holding that pavements constructed in the manner and by the processes used by the defendant there, which were identical with those used by the appellant, did not infringe the patent.

This case seems to be decisive on the question of

infringment, as there is no controversy about appellant's process or completed pavement, for in respect to the use by appellant of joists or guide-bars in laying the pavement solid, and without interposing any substantive material between the joints, and without cutting the pavement through and using only such marks upon the surface as would prevent the formation of ragged edges in case the blocks separated by shrinkage or by frost upheavals at the seams where the blocks abutted solidly against each other, and in all other respects appellant's pavement is like the one held to be no infringement in this Schalicke case. No pavement constructed as appellant constructs his pavement has in any case been held to be an infringement, except in the case of *California Paving Co.* v. *Perine*, 8 F. R. 821, which Judge Sawyer, himself, overruled.

California Paving Co. v. *Frecborn*, 17 F. R. 735.

And possibly in *Kuhl* v. *Mueller*, 21 F. R. 510, referred to by this court in *California Paving Co.* v. *Schalicke*, p. 406.

Since the decisions of this court, this patent has been elaborately considered by the Supreme Court of the District of Columbia, in *Schillinger* v. *Cranford*, 37 O. G. 1,349, and by Deady, J., in *Schillinger* v. *Middleton*, 31 F. R. 736, and in both of these decisions prior adjudications have been thoroughly considered, including two unreported ones by McKinnan, J., and by Butler, J., in the Eastern District of Pennsylvania, and in all of these later cases the courts have unanimously agreed in holding that the Schillinger patent did not cover a pavement which did not contain "a complete and efficient method "of separating adjoining blocks of concrete by interpos-

" ing strips of tar paper, or some equivalent material, " between the joints of the adjacent blocks."

It does not appear that in any of these cases a complete showing of the prior art has been made as in the case at bar, except in the case of *Schillinger* v. *Greenway Brewing Co.*, where the answer in this case was copied, but unsupported by proofs. The conclusions in these cases relating to the scope of the patent have been reached by the several courts upon the *prima-facie* construction of the patent with its disclaimer.

The construction put upon the patent by this court, and by the later decisions of the Circuit Courts, are amply sufficient to discharge appellant's pavements from the charge of infringement, and it may not, therefore, be essential, in disposing of this case, to consider the question as to whether the patent is valid or not as the *prima-facie* limitations put upon the patent are sufficient to free all of the appellant's pavements upon the question of infringement alone.

IV.

Error in Decreeing Profits.

The court, p. 26, sustained appellant's exceptions to the master's report, and found that appellee had not established any uniform license fee which the court could accept and set aside the master's award, in so far as it was based upon a supposed established royalty, and says:

" If the court awards to the complainant *all the profit* " which the defendant has made by the use of the com- " plainant's patent, it seems to me that the latter cannot " complain."

The master, p. 23, after reporting damages on the basis of royalty, adds as follows: " The testimony shows

" that the *defendant's profits* amounted to 4 cents a square " foot, which would make $2,833.44 due the complainants " upon this basis."

The final decree, page 27, contains this recitation: " The facts found by the master furnish a basis by which " the court can fix the damages without a re-reference; " the same are hereby computed and fixed at the sum of " two thousand eight hundred and thirty-six dollars and " thirty-six cents ($2,836.36), being the *defendant's profits*, " at the rate of four cents per square foot."

It will be seen, from these quotations, that the court gave appellees the sum stated *as the profits* made by the appellant in his business, the master having reported the profit to be four cents per square foot, which was the entire profit for the whole pavement.

The master, page 22, says that he finds the defendant has laid seventy thousand nine hundred and nine feet of pavement, " by the use of the patent of the complainant, " as described and defined in the opinion of the court " rendered in this cause."

The court, in the opinion there referred to, did not describe or define the scope of the appellees' patent, or put any construction upon the claims; it simply held that the apeellant's flag pavements infringed the patent, and this is doubtless all that the master means by his statement, which would have been more accurately put if he had said of such pavements as that held by the court to be an infringement.

Perkins, p. 583, defines the invention of Schillinger, upon which he bases his estimate of value, as follows: " To what do you refer as the Schillinger invention? " A.—Any pavements that contemplates making joints so

" as to control the cracking *which necessarily must occur* " with any pavement made of cement concrete."

Wadsworth, p. 587, gives a more intelligent answer, and says that he understands the Schillinger patent to be for a joint that shall prevent cracking, " like laying one natural stone up against another."

Hey, p. 593, says that the prominent feature of the invention is the controlling of the cracking.

On p. 394, he agrees that, if the blocks are separated from top to bottom, there could be no cracking *of any kind* along this line or joint.

If a critical examination of this testimony be made, it will be seen that the witnesses attribute the value of the Schillinger invention to the fact that the pavement was made of cement concrete. Perkins, p. 582, says that it is impossible to make a pavement that will stand unless it embodies the Schillinger invention; and was then asked as follows: " Then you mean to say the *whole value of* " *the pavement* you have laid was due to the Schillinger " invention? A.—Virtually that."

Salisbury, p. 30, says that the controlling feature in this class of pavements " is having the blocks marked off and made in slabs or separate blocks."

We have before seen that the witnesses all agree that appellant never used tar paper or anything else between his paving blocks; that they were so formed as to be solid together, and that no joint of any kind was ever made while in process of formation, and that joints only appeared when in process of time the body of the pavement shrank so as to show the seams or a seam between each batch of concrete where it was originally joined; that the surface of the pavement was slightly indented or marked over this incomplete union of the parts, so that, when the concrete

shrank and the seam eventually appeared, it would have the appearance of a designed joint rather than the ragged edge of a crack.

Appellees' witness Perkins agrees that this shrinkage is natural to the material used, and that it would crack along the seam in any event, so that, on appellees' own showing, all of the value that could arise from what they here claim to be the Schillinger invention is merely a matter of difference between a ragged edge and a smooth edge.

Hall, called by appellees, page 625, says that a sidewalk is better without tar paper than with it; that there is no demand for tar paper joints, as they are wholly unnecessary.

Smith, called by appellant, page 604, says that paper joints are bad, as the paper soon works out, leaving open joints for water and frost to get in and heave the pavement; that for himself he would have nothing but tight jointed pavement.

Hurlbut, page 629, says that tar paper is a positive detriment; that its use brought the pavement into disrepute, and that its use makes the pavement cost more.

The witnesses on both sides thus agree that the Schillinger improvement, instead of being an advantage, is a positive damage, and this the court will readily understand from Smith and Hurlbut's statements, pages 605, 629, that the paper soon rots or works out, and then open joints are not only left for water to enter, but the edges break and chip off in use, so that the seam is rapidly increased in size, and soon becomes unsightly in appearance.

Farnum, page 615, says that he thought every man

had a right to imitate natural flagstone, if he could, in making artificial stone, without the payment of royalty.

From this brief review of the testimony, it will be seen that it is not possible for the finding of the master and a decree of the court to be otherwise than based upon the entire profit realized in making pavements.

That this basis of computation is bad, and has been found to be bad, in respect to this same Schillinger patent, appears from the following, which we quote, as a part of our contention, from the opinion of Mr. Justice BLATCHFORD, in *Schillinger* v. *Gunther*, 3 B. & A. 497–8, as follows:

"The decree directed the master to report the profits received by the defendant from the manufacture, use or sale of the patented improvement. It is those profits alone which the plaintiff can recover. He cannot recover anything more, as profits. He cannot recover the profits of the manufacture, sale or use of anything but the patented improvement. He cannot recover the profits of the manufacture, use or sale of anything found in the pavement, or of any part of the pavement, except the patented improvement. Whatever distinctive profit belongs to the use of 'the arrangement of tar paper, or its equivalent, between adjoining blocks of concrete, substantially as and for the purpose set forth' in the patent, is the profit to be recovered. Such distinctive profit must be shown affirmatively by the plaintiff. If he fails to show it, he can recover nothing, as profits. The plaintiff has proved no license fee, as showing the value of the patented improvement. Nor has he otherwise shown the value of the patented improvement. No evidence on that subject was given before the master. The reference proceeds on the principle *that all the value* or usefulness there was in the pavements laid by the defendant *was due to* the permanent or temporary interposition in the joint, during the process of laying, of something external, to make a separation into blocks or sections. This was clearly a mistake. The plaintiff's invention contributed but a

small part of the usefulness of the pavement. As a concrete pavement, with all the advantages due to the smoothness and durability of such a pavement, it was a valuable pavement, without being in blocks or sections made by the use of the patented improvement. The advantage of being in blocks made by the use of the patented improvement was an advantage which does not give to the plaintiff the right to recover the profits of laying the entire pavement. These principles are well settled.

" *Mowry* v. *Whitney*, 14 Wallace, 620, 649.
" *Philp* v. *Nock*, 17 Wallace, 460.
" *Goulds Mfg. Co.* v. *Cowing*, 12 Blatchf. C. C. R., 243.
" *Goulds Mfg. Co.* v. *Cowing*, 14 Id., 315.
" *Black* v. *Munson*, 14 Id., 265.
" *Buerk* v. *Imhaeuser*, 14 Id., 19.
" *Blake* v. *Robertson*, 4 Otto, 728.
" *Garretson* v. *Clark*, 15 Blatchf. C. C. R., 70."

The case, *Garretsen* v. *Clark*, here referred to, was appealed, and in *Garretsen* v. *Clark*, 111 U. S. 120, a similar decision by Mr. Justice BLATCHFORD was approved and the rule was restated, as follows:

" The patentee must in every case give evidence tending to separate or apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features, and such evidence must be reliable and tangible, and not conjectural or speculative; or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature.

" The plaintiff complied with neither part of this rule. He produced no evidence to apportion the profits or damages between the improvement constituting the patented feature and the other features of the mop. His evidence went only to show the cost of the whole mop, and the price at which it was sold."

The same rule is stated in *Black* v. *Thorne*, 111 U. S. 122.

The proofs are that appellant has never laid any tar paper or any other material or substance whatever, in the joints while in the process of formation, or at any other time. And there is no proof that appellant has at any time or place laid any floors or pavements having free joints when the pavement was completed, or any pavement in which any block could be taken up at all until several months after it was laid, when made of straight flags, and no diamond pavements which were not under and over beveled at the edges of the blocks to keep them level and together, so that no one of them could be raised above another by frost or by design.

From the proofs and the authorities cited, it will be seen that there is no basis or foundation for decreeing the amount found by the court, and that nominal damages only, should have been awarded.

From this review of the case it seems clear to us that all of the assigned errors are well founded.

L. L. BOND,
E. A. WEST,
For Appellant.

FILED.
MAR 19 1889

SUPREME COURT,

OF THE UNITED STATES.

October Term, 1888.

NO. 215.

J. B. HURLBUT,
Appellant,

vs.

JOHN J. SCHILLINGER, and OLIVE G. SALISBURY, Administratrix of ELMER G. SALISBURY, deceased,
Appellee.

Appeal from the Circuit Court of the United States, for the Northern District of Illinois.

BRIEF AND ARGUMENT FOR APPELLEE.

GEO. W. HEY,
Counsel for Appellee.

SYRACUSE, N. Y.,

J. P. FRALICK, Printer, Room 99 Wieting Block.

1889.

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STATEMENT OF THE CASE.

This is an appeal from the decision of the Circuit

Court for the Northern District of Illinois in the equity cause of Schillinger, *et al.*, vs. Hurlbut.

The suit against Hurlbut was for the infringement of re-issue Letters Patent, No. 4,364 granted Complainant Schillinger on May 2d, 1871, being re-issue of original Patent No. 105,599, dated July 19, 1870, for an improvement in Concrete Pavements, and was begun by a bill in equity for an injunction and accounting.

The original suit was instituted in favor of one Elmer J. Salisbury, the exclusive licensee under the above described patent for the State of Illinois, who was engaged in the business of constructing pavements under the patent in suit at the city of Chicago. The defendant Hurlbut, was also engaged in business in the city of Chicago constructing concrete pavements, and was a member of a corporation known as The Portland Cement Paving Company of the city of Chicago.

The suit was commenced in October, 1882, and the defendant filed his answer on the 2d, day of January, 1883; testimony was subsequently taken on part of the complainants and the defendant and the case prepared for hearing at the March term of 1884.

Prior to the hearing of the case, to-wit., on the 15th of March, 1884, it appearing upon the suggestion of complainants' counsel that Elmer J. Salisbury had in the mean time died, the Court granted leave to complainants to file a Bill of Revivor, which was on the same day filed, reviving the case in the name of John J. Schillinger and Olive G. Salisbury, administratrix of Elmer J. Salisbury, deceased.

That after hearing counsel, and due consideration of the record, the Circuit Court for the Northern District of Illinois found in favor of the complainants and awarded a decree for an accounting against the defendant; that the usual proceedings were had before a Master, resulting in a report awarding the complainants the sum of $3,545.45; exceptions were filed to the Master's report and a hearing had thereon before his Honor, Judge Blodgett, which resulted in a final decree in favor of complainants against the defendant for $2,836.36, together with the costs of the action in the Circuit Court.

The defences urged by the defendant were:

1st. That the Patent upon its face did not purport to cover any invention or improvement, other than putting tar paper in the seams or joints.

2d. That upon complainants' construction of the patent, it was void.

3d. That the re-issue, on such construction, was not for the same invention as the original; and, 4th, non-infringement.

From this decree the defendant Hurlbut brings this appeal to the United States Supreme Court.

Complainant's Schillinger Patent has been before the U. S. Circuit Courts of the country for judicial determination and construction in several cases; the first decision thereon was rendered by Judge Shipman in Schillinger vs. Gunther, reported 14 Blatchford, 152. In the same case before Judge Blatchford, 17 Blatchford, 66. In the California Artificial

Stone Paving Company vs. Molitor, and same against Perine, 20 O. G., 813. Schillinger vs. Brewing Company, 24 O. G., 495. Kuhl vs. Muller, 21 Federal Reporter, 510. California Stone Company vs. Freeborn, 7 Sawyer. Cutsprice Stone Co. vs. Molitor (U. S. S. Ct.) 113 U. S., 613. Schillinger vs. Cranford, 37 O. G., 1349.

ARGUMENT.

The Schillinger Patent involved in this appeal is the same patent which was before this Honorable Court in the equity cause of "The California Artificial Stone Paving Company vs. Schalicke, decided December 20, 1886." *119 U. S. 401.*

The Court, in formulating its opinion in that case, states that:

"The specification makes it essential that the pavement shall be so laid in sections that each section can be taken up and re-laid without disturbing the adjoining section, * * * * *."

Again:

"That the joint between the blocks allows the several blocks to heave separately from the effects of frost, or to be raised or removed separately whenever occasion may arise, without injury to the adjacent blocks. This is essential, and in all cases where infringement has been held to have been established, there have been blocks substantially separate, made so by the permanent or temporary interposition of a separating medium or a cutting instrument, so that one block could upheave or be removed without disturbing the adjoining blocks."

(See page 407, 119 U. S.)

The claims of the Patent are two in number and read as follows;

"1. A concrete pavement laid in detached blocks or sections, substantially in the manner shown and described."

"2. The arrangement of tar paper or its equivalent between adjoining blocks of concrete, substantially as and for the purpose set forth."

The first claim of the re-issue must be read in connection with the disclaimer filed by Schillinger in the United States Patent Office on the 1st of March, 1875, in which he disclaimed "the forming of blocks from plastic material, without interposing anything between their joints while in the process of formation."

It is contended on the part of the appellee here, that the proper construction of the Schillinger patent is—that the first claim is for a concrete or cement pavement laid upon a prepared bed or foundation in detached blocks or sections of plastic material, *when such detached blocks are formed by interposing either permanently or temporarily, a separating medium consisting either of a cutting instrument, or other means between the blocks, so that one block can upheave or be removed without disturbing the adjoining blocks*, while the second claim is for such a pavement *wherein the blocks are separated by the interposition of tar paper, or its equivalent, between the blocks during the process of formation*, producing a free joint between the blocks, for the same purpose as stated in connection with the construction of the first claim.

The concrete pavement described in Complainant's Patent is one of the most useful and valuable inventions of the age, and has come into general use in all of the principal cities of the United States. Pavements in accordance with this patent have been largely constructed in the grounds surrounding the government buildings in Washington, New York and many other cities throughout the country.

The great advantage of the Schillinger pavement accrues from the peculiarity of its construction, which consists in the fact that it is formed directly on the ground where it is desired to lay the pavement, the material being spread while in the plastic state, upon the prepared foundation bed, where it conforms to and fills all the inequalities of the surface of the bed, presenting a smooth, even surface, finished and completed at a trifling expense compared with natural stone or other pavements, while it possesses all the characteristics of solidity and durability of natural stone, and is equally handsome in appearance.

Prior to the invention of this pavement by Schillinger, it was customary to form concrete pavements in strips or sections, between joists or frames, without any attempt to divide the pavement into blocks. This pavement of the prior art was a uniform surface of concrete that contracted and expanded from natural causes, and when it became cracked through the agency of frost it was not easily repaired. Schillinger was the first to discover a practical method to overcome the defects of the old form of concrete pavements, and the first to devise the separation of the blocks in the process of formation by the inter-

position of some material or medium while the concrete was in a soft or plastic state.

The great advantage that accrues from separating the blocks while the pavement is in process of formation, resides in the fact that the cracking of the blocks from natural causes is controlled to follow or come in the "joint" between the blocks, while the fact that the blocks are thus formed separately permits the removal of a defective or worn-out block, and greatly facilitates the ease of repairing, when it becomes necessary to replace such defective block.

This Honorable Court is familiar with the extensive litigation which has been had on the Schillinger patent in the Circuit Courts of the United States, and it is not thought necessary by counsel to recapitulate the numerous decisions of the Circuit Courts, sustaining the validity of this patent, and construing the invention covered thereby.

It is assumed for the purpose of the argument that counsel for the appellant will rely upon the same defences and the same facts to establish the defences which were urged in the Court below.

With this assumption the first question that presents itself for consideration is:

AS TO INFRINGEMENT.

The right of action in the Complainant Salisbury, against the appellant, and defendant in the Court below, arose from an exclusive license granted by the

patentee Schillinger to Salisbury, on August 26, 1882. This license is reproduced at page 50 of the printed record.

The first pavement constructed by the defendant in violation of the Schillinger patent was made in October, 1882, on the premises at the corner of Chicago and Dearborn avenues, in the City of Chicago. There is no dispute as to the construction of this pavement, defendant having offered no proof to contradict the testimony adduced on behalf of complainant's, regarding the method employed. The testimony offered by complainants as to this pavement is found at page 31 of the record, which is as follows, viz:

Amos H. Perkins, sworn for Complainant.

"Q. 4 1-2. Are you familiar with the process employed by the defendant Hurlbut, in constructing diamond block and concrete flagging?

"A. I am.

"Q. 5. When did you last see the defendant Hurlbut, or his employees, engaged in laying concrete or cement flagging, and where?

"A. In the latter part of last October, at the corner of Dearborn and Chicago avenue, this city.

"Q. 6. Please describe the construction of that pavement and for whom laid, if you know?

"A. First joists are placed seven to eight feet apart in front of the property where the work is to be laid. First one stone is formed by placing a joist across between the others at right angles—generally at about four feet from place of beginning. In this space a mortar composed of sand, gravel and cement is put and thoroughly tamped so that the coarse material will be from three to four inches in thickness, leaving about one-half inch on top for a mortar composed of sand and cement, which is troweled off and made even with the top surface of the joists. Then the short joists that is in at right angles as before described is taken up and placed about the same distance as before, and again filled in. The finer material in the coarse concrete is generally worked next to the joist, so as to make a good, smooth, strong edge.

When the top stuff is put on this last stone, and finished over on top with a trowel, the joint between the two stones being marked on the outer joists, a trowel is drawn through the top stuff to make a joint straight to correspond with the joint below.

"Q. 7. And was this method the one employed by defendant in constructing the pavement on the corner of Chicago and Dearborn avenues last October ?

"A. It was. The pavement was on the northwest corner of Chicago and Dearborn avenue.

"Q. 8. Do you know for what purpose the cutting instrument was used over the timber line between the blocks on the pavement which you have described; if so, please describe ?

"A. For the purpose of making the separation between the stones."

It was conceded at the argument in the court below that defendant was liable only for pavements of the character described in the evidence of A. H. Perkins and designated in the Record as "Concrete Flagging" and the accounting was confined to and includes only this class of pavements.

See record, pp. 578 to 630 inclusive, and also *Defendant's statement of concrete flag pavement, laid after August 26th, 1882, pp. 598 and 600, Record*

The position of the defence in respect to the construction of the concrete flagging is that the cut between the blocks is made simply for the purpose of marking the pavement into blocks to give the pavement the appearance of flagging, while it is new, and the special effort of the defence is to establish this propositions the only dispute which arises between the testimony adduced for the complainant, and that of the defendant, is on the depth of the cut between the blocks of defendant's pavement and the purpose for which it is made.

Our contention is, that it is for the purpose of separating the pavement into detached blocks and thereby preventing the cracking, while the defendant contends that such cutting is solely for the purpose of ornamentation.

The defendant seeks to establish his position by the testimony of the expert, Mr. Bates, who at Int. 7, page 92, Record, testifies in a general way as to the defendant's method of laying concrete walks and the purpose of the cut between the joints of the blocks. At Int. 8, he is asked the following question:

"Have you read the depositions taken in complainant's *prima facia* evidence, and if so how does the process described by the witnesses in such evidence as used by the defendant in laying flagging, compare with the process which you saw defendant use?

Ans. They are identical except in one respect." The witnesses state that a cut is made in the pavement to control the cracking. In the pavement which I have seen, there is no cut made, but simply a mark, and this mark was simply to give the appearance of flagging when the pavement is new and before the joints have opened by shrinkage. * * * * ."

See page 93, Record.

Mr. Bates states that it is his opinion that the cutting or marking described by the witnesses would not control the cracking. This is the position taken by the defendant in pretty much every reported case in which this patent has been involved. It is really the leading issue in this case, and considerable testimony has been introduced by the complainants to show that the defendant's pavements are actually separated into detached blocks, and all of the advantages of the Schillinger Patent obtained by his method of constructing such pavements.

Before considering testimony adduced for complainants in reply to defendant's testimony, the following testimony of the defendant, Hurlbut and his workman will be referred to. This testimony was taken in the case of Schillinger vs. The Philip Best Brewing Company, and was stipulated into this case, and is printed at pages 99 to 183 inclusive, of the Record. This testimony shows clearly that the cut made with the trowel or joint-marker, by the defendant, is made directly over the line between the two blocks where they adjoin one another. The defendant, Hurlbut, at page 149, testifies:

"Cr. Q. As a matter of fact, the success of these walks is due, in a great measure, to the separation of the blocks?

"A. It may be so termed.

"Cr. Q. Has not experience in the use of cement walks demonstrated that clearly as a fact?

"A. Yes, sir. If you wanted to lay a walk a mile and a half long, you would not expect to keep it together without a break.

"Cr. Q. You would not want to lay one a quarter of a mile long, either?

"A. No, sir.

At page 159, Hurlbut says:

"Re. Cr. Q. In finishing these flag pavements, it would not be desirable to have a series of marks running across the flags?

"A. No.

"Re. Cr. Q. Consequently, knowing that these flags will ultimately spread, what is your aim in making that mark there—I mean, do you aim, usually, to get it over the line of separation?

"A. Yes, sir.

"Re. Cr. Q. Now, the indentation in the smooth upper course, when made in the proper place, leaves a smooth joint line after the separation, does it not?

"A. It would make a mark line as smooth as made, of course. In time that line would not be so smooth from wear or chafing.

"Re. Cr. Q. And you say one aim is to get this line over the timber line?

"A. Yes, sir; in the inner line of the timber, of course."

Again, at page 157, Hurlbut says:

"R. D. Q. Tell us what the facts are in regard to the fresh cement adhering to the pavement previously laid, so far as you have not explained it?

"A. The first coat being laid some half an hour, more or less, before the second block, the first block has already commenced to crystalize and set, and it leaves a much harder surface than the new blocks, of course; the new block being in a plastic state, still, it does not adhere to the first strongly. The first block having a comparatively smooth surface—the material being of gravel, and cement enough to fill up the interior—leaves a comparatively smooth surface to the first, all the particles of sand and gravel being parted on a straight line, consequently all the adhering properties would be all that was given to it from the new block laid against it. The old block would not impart much, if any, adhering qualities. The blocks would adhere more or less for some time. The separation may be caused by the ground heaving or frost, or contraction by setting."

Again at p. 145, Record—Hurlbut describes his method of laying "Concrete Flags."

"Q. Please describe how you laid the flags?

"A. The same way as the malt floor, except we kept the joints up full, and sometimes compressed the line of that joint by a V shaped strip—bore it down the sixteenth of an inch or so. A piece of board brought to an edge, and just the edge depressed down in the work showing a line.

"Cr. Q. Is that pressed along the straight-edge, or is it of sufficient width to extend across the flag and find the place of the union of the two blocks, and then sunk in the sixteenth part of an inch?

"A. We sometimes laid a straight-edge across and pricked where we wanted to lay it In some instances we draw a line right across and a trowel over it.

"Cr. Q. That alone suffices to make a joint line?

"A. Yes sir, when it is new it would show right away it was intended to be blocked off, it has no other purpose.

"Cr. Q. When the blocks separate, the cracking follows that line?

"A. It would if we put this line over the place where the scantling is removed; if it is a quarter of an inch away it will not.

"Cr. Q. Do you bring it right over where the timber is withdrawn?

"A. Yes sir; where the timber is removed from.

"Cr. Q. The cracking follows the line?

"A. It follows where the material was parted on the fresh line, that controls the cracking whether there is any mark on the surface or not.

Hurlbut testifies as follows about the pavement described by Perkins, viz:

Cr. Q. Did you see the pavement made for Hill, corner of Chicago and Dearborn Avenue?

A. Yes, sir.

Cr. Q. Was that pavement laid by your company?

A. Yes, sir.

Cr. Q. In that pavement the joint is marked?

A. By a line drawn across and pressed down.

Cr. Q. That line was made directly over where the joint was?

A. Yes, sir.

Cr. Q. It was as a matter of fact made so?

A. Yes, sir; as nearly as may be.

Cr. Q. Have you examined that pavement since it was laid?

A. No, sir; not particularly.

Cr. Q. When did you see it last?

A Not since it was laid.

Cr. Q. In October?

A. Yes, sir.

Hurlbut swears that his pavements may be taken up in separate blocks.

See p. 151 Record.

Cr. Q. "Do they come up in a solid block or in separate blocks ?

A. Separate blocks usually.

At page 155 he swears as follows, viz :

Cr. Q. Are you now testifying that you do not know whether it is separated or not ?

A. I thought you meant the fountain. I have noticed that it separates as it usually does. It can be taken up in blocks if we can get into one edge.

Cr. Q. By commencing at the edge the separate blocks can be removed ?

A. Yes, sir. I have in many instances and relaid them.

At pages 157 and 158 upon re-examination he testifies :

Rd. Q. What did you mean by your answer to Mr. Hey yesterday —that the success of the blocks is due to the separation ?

A. Experience teaches us there will come a contraction joint on the timber line in time; it may be weeks or months after being laid, although the joint is closed and adheres more or less at first. It would be what you would term a solid mass at first in appearance.

Rd. Q. Could that be closed with fresh cement—the crack ?

A. What crack ?

Rd. Q. You say there is a contraction joint. Do you mean a crack at the line ?

A. Afterwards, yes sir.

Rd. Q. Can that be filled with fresh cement ?

A. No, sir; many times it is not the size of a hair; it has the appearance of being larger years afterwards from chafing the corners.

Rd. Q. But I do not yet understand how the success of the blocks is due to separation. What do you mean by answering affirmatively to Mr. Hey's question of that kind ?

A. In laying a long walk it would relieve it from cracking irregularly. In a ground spring or shrinkage it would naturally give out in the weakest place.

Rd. Q. Wolud not it be better for your business and work if there were no cracking at all ?

A. If we could provide against the settling of the ground, or heaving or frost.

Hurlbut testifies that the lower course of his pavement is composed of sand, gravel and cement, mixed in proportions of one part of cement to seven of sand and gravel, or one to six. *Record, p. 147.*

The upper course is one half sand and one half cement, made plastic with water. *Record, 147.*

John Miller, for defendant, testifies that he is foreman for Hurlbut, *p. 100 Record*; that the lower course of defendant's pavements are composed of one part cement to seven of sand and gravel, and the upper course one half cement and one half sand, *Record, 118.* That defendant's flag-walks are cut between the blocks along the joint, with a straight edge beveled on both edges made sharp.

"To make a kind of corrugated curve it is placed on the stone right along the joint and rapped upon to press it in."

Record, 108.

At p. 109 Miller swears there is no great difference between defendants method and that of the Schillinger patent.

His testimony at 111 Record is interesting.

"Cr. Q. Supposing I mold two blocks in this way (counsel indicates) I first lay my scantlings the size of this envelope, and lay my block. Then I take the scantling up here and put it here and lay another block. The upper course is fine as you have described, and it is floated smooth on to the other block. The material will shrink, so it will open along this line between the two blocks. How will that look, smooth and straight or rough and zig-zag?

"A. It does sometimes look smooth and straight and sometimes not.

"Cr. Q. The chances are it will be rough where it breaks off, uneven?

A. Sometimes.

"Cr. Q. If you take your straight-edge, however, and lay it on the joint line, and then take the beveled cutting instrument and run across in this way, how will those blocks open then, in a straight line, or rough and zigzag?

Objected to as immaterial, and assuming facts not proven.

A. It will open in a straight line.

Charles Row, sworn for defendant, at page 162, Record, testifies:

"That the new material is built up against the old section, I fill it right plumb up, then I take the line and line it off so. I mark it off here just where the scantling was before. Sometimes we make a line with a trowel, or take a piece of string and draw it across about an eighth of an inch in depth, and that cracks right off over that line, then there is a join there anyhow."

Klaus Miller, for defendant, testifies at page 172, Record, that the walk made by Hurlbut in Pabst's gardens was a flag walk. He says:

"Those flags had a joint line across them made with a piece of iron, run right along the straight edge."

At 173 Record he says:

"The cracking runs along that line; the line is cut or made to make the mark."

At 174 *ibid* he says:

"The blocks separate on this joint line."

At 176 *ibid* he says:

"Q. Did you mean to say to Mr. Hey that this mark was made on the top of the flagging pavement, so that it should crack along the line of that mark?

"A. I did not say so. The mark is only made there for show. We always make the mark right along the line. We always make the line where we put one stone against the other. If it should crack, if one stone settles, it may crack there.

Mr. Hey:—I understand you to say you don't know whether it always cracks along that line.

A. I took no notice. I say so far as I know the business if it should settle down one stone it could not crack any other place except that.

Q. It would be more likely to crack where the new block had been placed against the old one?

A. Yes, sir; right there in the joint.

Elmer J. Salisbury, sworn for Complainants' at p. 183 Record, describes the composition of the concrete flag pavements made by the defendant. He says:

"The weakest point in defendant's pavements is between the adjoining blocks, *p.* 184 *ibid*, A cut of the character described by Mr. Hurlbut and his witnesses would certainly control the cracking of the blocks,"

P. 184 ibid.

"My experience has been, that the cracking would follow the cut over the timber line."

P. 184 ibid.

In respect to examinations of and tests made on defendant's pavements, he testifies as follows, viz:

"Q. 8. Have you recently examined carefully a pavement laid by defendant during the present year, with especial reference to the joint made as stated above?

"A. Yes, sir.

"Q. 9. Where was it?

"A. At the corner of 32d street and Groveland avenue.

"Q. 10. Did you make any test at the joint on that pavement?

"A. I put my knife blade down into the joint a half to three-quarters of an inch and it showed a nice, open, clear and distinctly cut joint.

"Q. 11. Do you know for what purpose the cut or mark is made between the stone?

"A. Yes, sir. What I use it for is to control the cracking.

"Q. 12. And does it have the same effect on Mr. Hurlbut's pavements?

"A. Yes, sir.

"Q. 13. Have you carefully examined pavements constructed by him, with special reference to this point?

"A. Yes, sir.

"Q. 14. And are enabled from such inspection to testify positively in this regard?

"A. I think I am.

"Q. 15. Have you examined flags or pieces of flags, constructed as you have described after the flags or pieces of flags have been taken up. I mean with reference to the condition of the stone?

"A. I have diamond work but not flags.

"Q. 16. Does the mark or trowel cut tend to separate the stones at the joint line?

"A. It does.

"Q. 17. Have you seen pavements constructed by the defendant in which there was distinct evidence of separation?

"A. Yes, sir.

"Q 18. What condition was the pavement in which made the fact of separation palpable?

"A. Uneven surface and open joints.

"Q. 19. By uneven surface, am I to understand blocks raised so as to project above adjoining blocks, or how otherwise?

"A. Yes, sir.

Salisbury's testimony clearly establishes that the cutting in the joint of defendant's pavements separates the blocks and controls the cracking.

Pages 185—190 Record.

Charles E. Hall, testifies for Complainants to the same effect.

See Record pp. 190 to 196.

At p. 191 *ibid* he says:

"Q. 8. In the pavements laid by the defendant Hurlbut, the witnesses state that a mark or cut with a joint marker or trowel, is made between the flags or blocks. Can you state what effect such mark or cut produces?

"A. My experience is that if you mark a stone or flag, even to a slight extent, while in a plastic state, it will cause it to break at that point quicker than at any other point. It will make the separation fol-

low that line; and that is the object we have in making that mark. My experience has always been that that will control the breaking caused by any upheaval. I mean the marking must be over the timber line between the two stones. It has often been the case that cement pavements have been laid in a solid body, and the result is, that when there was frost or any upheaval from below, the stones laid in that manner have cracked in a varied manner and without any regularity. In order to obviate that, we have marked them so that when they crack they would crack on the mark over the timber line. The same thing will apply to any artificial stone whether it be laid in a sidewalk or not. We have used the same method often where we wanted stone to separate easily.

"Q. 9. Then am I to understand you, that the separation of the stones can be effected and controlled so that it will follow the joint line between them by a slight mark or trowel cut over the timber line?

"A. Yes, sir, it will break there every time unless there is some tenably weak spot at some other place caused by a lack of material.

At p. 193 he testifies that the blocks thus made could be taken up separately.

"A. Yes, sir. From experience in taking up some of those old sidewalks at a later date I found that the blocks would move very readily from each other without very materially fracturing or breaking their regular shape."

Amos H. Perkins, re-called for complainants on rebuttal, *see pp. 197–201*, testifies further in relation to defendant's pavements as follows, viz:

"Q. 7. Mr. Hurlbut and his witnesses testify that after two adjoining blocks are completed, a straight-edge is laid on top of the block over the timber line and a cut made with a trowel or V-shaped marker, about an eighth of an inch in depth. Do you know what effect such cutting or marking has; if yea, please state?

A. It controls the breaking, if any, if any material is left to break in the joint that is not cut.

Q. 8. Am I to understand that the defendant cuts through the upper course in some of his pavements?

A. In what I have seen of his men laying pavements in different

parts of the city, most generally their intention is to cut through the fine stuff or top course.

Q. 9. Does such cutting effect the separation of the blocks so that it can be readily seen when such pavements are examined?

A. It does.

Q. 10. Have you recently examined pavements constructed by the defendant which enabled you to state positively in this regard ?

A. I have.

Q. 11. What did you find that shows a positive separation in defendant's pavement; and where was such pavement ?

A. Where a settling has occurred where those pavements have been laid, one block sinking below the other, and showing a clean, square joint. There are many places in the city where I have observed it; one place not over a half block from my house I saw recently.

Q. 12. Will you produce a photograph of one of those pavements showing where a block had settled; and allow the same to be attached to your deposition here ?

A. I have one here, taken from the front of Nos. 221 and 223 Ontario Street." pp. 198, 199.

See photo, reproduced next to p. 202, Record.

In respect to the cutting necessary to effect the separation of the blocks he says, page 200, *ibid*:

"C. Q. 18. The trowel cut then is simply for the purpose of dividing the upper course on the timber line to have the separation follow that line in both courses, it doing so naturally in the lower course. Is that so ?

A. It is for the purpose of separating.

C. Q. 19. How deep a cut, in your judgment, is necessary to effect this result ?

A. It is owing to the thickness of the top course. Ordinarily the top course being a half an inch in thickness, would only require a mark or cut from a sixteenth to an eighth of an inch; but ordinarily it is cut from a quarter of an inch to clear through the surface.

A. Faber Du Faur, sworn for Complainants in answer to questions 7 and 8, pp. 205, 207, Record, testifies to the same effect.

John J. Schillinger, the patentee, sworn for Complainants, shows clearly that defendant's method of constructing flag walks is an appropriation of the Schillinger invention.

See his deposition pp. 227, 234 Record.

At page 228 he testifies, that concrete pavements made without joints between the sections were failures In this respect he says:

"Q. 11. Supposing a pavement is made as described without any cut at all, the fine material of the upper course coming together smooth and even on top and of good material, how will frost or heaving and settling affect such a pavement?

"A. If it cracks along the line where the joists have been laid for the lower course, it will be irregular on top and in many cases the crack will run across the line.

"Q. 12. How do you know that? Have you ever constructed such a pavement, and if so, where, and with what result; state fully?

"A. I have constructed such a pavement in the fall of 1874, on Capitol grounds in Washington, D. C., which pavement I took up the next spring on account of such irregular cracking.

"Q. 13. And does your own experience fully confirm you in the views which you express here, in regard to the action of the pavements described?

"A. Yes, sir."

Schillinger conceived the invention in 1869, and began to put it into public use in the spring of 1870, he practiced the invention in two methods, or made two kinds of pavements which he called respectively "Street Walks" and "Garden Walks", his method of constructing garden walks is identical with defendant's method of laying flag walks, and it seems

from this evidence that defendant's method is a *well known equivalent* for the method set out in the patent, this appears clearly from the following testimony:

"C. Q. 27. In laying garden walks, what process or manner of laying did you use; please describe fully?

"A. I lay two long joists the whole length of the walk, then I lay lateral joists between the two long joists for every alternate flag; then I fill that bottom course first with coarse stuff about three inches, and then I put the top stuff on and smooth it off. Then I make marks to indicate the joints on both sides where they are so filled in with concrete, joints to joists; then I take away the joists and fill in between the two finished flags—first with coarse material and then with fine material; then I hold a straight-edge across this walk where the joist has been laid and cut in the top course with the joint cutter opposite the bottom joint.

"C. Q. 28. After being cut, what would be the condition of the flags in relation to each other?

"A Sectional pavement.

"C. Q. 29. When did you first apply this practice to use?

"A. When I made the experiments, and in spring of 1870.

"C. Q. 30. How long did you then use it?

"A. Ever since.

"C. Q. 31. Why did you not use tar paper as provided for in your patent in the process employed by you for laying garden walks?

"A. I consider this as an equivalent for tar paper as provided for in my latest patent, and use it for narrower walks and cheap walks.

"C. Q. 32. You have a patent then, which describes and points out specifically the process used by you for laying garden or narrow walks, as you have described?

"A. What I understand of the patent I have, is the use of tar paper between the joints, or anything which answers the same purpose to make an artificial joint or opening, part or wholly of the thickness. I understand the patent, that any portion of cutting is a part of my patent.

"C. Q. 33. To which patent do you now refer?

"A. To the patent in litigation in this case."

See pp. 230, 231, Record.

John H. Stark, sworn for complainants, *pp. 234, 235, Record*, testifies that the cutting between the blocks in Hurlbut's pavements will control the cracking to come in the joint.

It seems clear from the foregoing testimony that the defendant's pavements are constructed in detached blocks, and that the separation of the blocks is effected during the process of formation by interposing a cutting instrument between the newly formed blocks to form a joint to control the cracking or breaking of the blocks, when subjected to the action of the elements and to permit the removal of a block when it is necessary to repair the pavement.

Mr. Hurlbut admits that the success of his pavements is due to the separation of the blocks. Indeed in view of the extensive and exhaustive investigation which this subject has undergone it may well be contended that this proposition is settled beyond the possibility of a doubt. Yet it appears from the theory of every defense which has been interposed upon the question of infringement that this is not the case, because the defendant invariably seeks to show that his special mode of constructing concrete pavement differs from the Schillinger invention for the reason that no separation is made beyond such as is due to the inherent qualities and nature of the composition employed. It is conceded, as stated by Judge Shipman in Schillinger vs. Gunther, *supra*, that concrete pavements laid of plastic material in molds formed by scantling or timber, were known to the

art. Such pavements, however, were formed without any attempt at separation of the sections and were unquestionably a failure and of no utility, for the reason stated by Judge Shipman.

The defendant, Hurlbut, seeks to show that he employs simply this old and well-known method, and that while in addition thereto he does use the trowel between the blocks to mark off and show a joint, that such cutting does not effect the separation.

If the defendant's method is carefully considered it will be seen that in forming his blocks or flags the utmost care is observed in facing up the edges of the blocks where they come against the timber face of the mold; and further it must be borne in mind that the block is composed of two layers or courses; the lower layer being composed of coarse gravel and sand in the proportion of seven parts sand and gravel to one part of cement, made plastic with water and spread upon the prepared foundation bed; then tamped or rammed down compactly; after which the upper course consisting of fine sharp sand, one part and Portland cement one part, made plastic with water, is then spread over the prepared lower layer, floated and troweled smooth on its upper surface; and carefully leveled by means of a straight edge, this completes the first block. Upon examination, now, of this block, we find it composed of two strata, the lower of which is two and one-half inches thick and composed of material in which but one part of binding or adhesive element is used to seven of non-adhering material. This lower strata has but slight adhe-

sive power. The upper strata having one-half of cement is very rich and possesses much greater adhesive properties, therefore when the adjoining block is formed against this completed block the lower courses of the two blocks have but slight tendency to adhere, while the rich upper courses do adhere strongly. The action of frost or upheaval caused by settling of the foundation exerts great influence upon this point of union of the two blocks, owing to the fact as stated, that the adhesion is almost wholly in the upper courses therefore a very slight cut in the upper course coinciding with the timber line, or line of separation of the lower courses permits the separation to extend to the top of the blocks, and such separation follows the joint line cut in the upper course.

That this is true is clearly established by all the evidence in this case; and by an examination of Complainants' Exhibit "Perkins Photograph" of defendant's Ontario street pavement. This pavement clearly establishes our case, because, as the photograph shows, the defendant's method clearly utilizes and secures the benefit of Schillinger's invention.

The Court is respectfully referred to the testimony of Charles E. Hall, sworn by the complainant on rebuttal, at Q. and A. 8, p. 191 Record, he shows cl arly the effect produced by the cut or mark made at the joint, and fully corroborates all that has been shown in the various litigations upon the complainants' patent. At C. Q. and A. 25, p. 194, *ibid*, he says:

"My idea in regard to their not breaking straight without the parting strip, would be this: That in making the block it is made in two parts which differ in quality; the first two inches or three is made of coarse material, with a very small proportion of cement say, one to five or seven, consequently not being so strong as the coating that follows, which is made of fine sand and cement, half and half, and being from a half-inch to three-quarters, and very strong. If there were no parting strip used, and no marking over that line formed by the frames, it being softer, would adhere or be more cohesive when the finish of the second block was put on, so that the two edges would unite strong enough to cause it to break irregularly. That is the reason, or at least one reason, why I use the parting strips—to overcome those difficulties."

Opposed to the naked statement of defendant's expert, Mr. Bates, that the marking or cutting with the trowel in the surface where the blocks join does not control the cracking, is the evidence of every witness produced in this case either by the complainants or the defendant; and it is a singular fact, that while every witness in the case with the single exception of Mr. Bates, has had years of experience in the construction of concrete pavements; Mr. Bates, upon seeing the defendant's method once, and once only, and without previous knowledge or experience with pavements of this class, is enabled to swear positively that such cutting or marking does not effect or control the cracking of the blocks.

Defendant's foreman, John Miller, at p. 111, Record, testifies that the cut between the blocks will cause the joints to "open in a straight line."

Defendant's workman, Klaus Miller, at p. 172, *ibid*, testifies that the blocks separate along the joint line where the cut is made.

The testimony of Charles Row, at p. 162 *ibid*, is to the effect that where the line is made or cut in about

an eighth of an inch in depth that it cracks "right over that line—then there is a joint there."

Michael Botzler testifies to the same effect.

The defendant, Hurlbut, himself, as has already been shown, confirms the above testimony.

The complainant, Salisbury, at Q. 6, p. 184, Record, testifies to the same effect.

Hall's testimony has been cited.

Amos H. Perkins, sworn for the complainants, at Q. 7, p. 197, testifies to the same effect; and further, the witness Perkins shows that the defendant is very careful to mark on the inside and outside where the timber line was, that is, on the coping and on the curb to make marks coinciding with the inner face of the timber line, so that when the adjoining blocks are completed a straight edge can be laid over the timber line by bringing its opposite ends in coincidence with the marks on the coping and curb and the joint mark is thereby cut directly between the two blocks. (See Q. and A. 13, p. 198,) and Mr. Perkins produces a photograph of a pavement made by the defendant, at 3171 Groveland Park Avenue, Chicago, to which the attention of the Court is respectfully referred; said photograph being introduced in this case as Complainants' Exhibit "Perkins Photograph of No. 3171 Groveland Park Avenue," p. 202¾, and it clearly shows the guide marks on the coping and curb to indicate where to cut in for the joint.

Complainant, Schillinger, fully corroborates the testimony cited above at Q. and A. 10, p. 228, *ibid.*

John H. Stark, at Q. and A. 3, p. 234, *ibid*, also testifies to the same effect.

Complainants' expert, A. Faber Du Faur, at Q. and A. 7. pp 205, 206 and 207. shows clearly that defendant's expert, Mr. Bates, is in error. and Du-Faur's evidence fully corroborates the foregoing.

In Schillinger vs. Gunther, the same question formed one of the leading issues and was fully investigated, and the Honorable Court is respectfully referred to the record for complainant in that case introduced here as Complainants' Exhibit "Gunther Record and Complainants' Exhibit Gunther record on Amended Answer."

In the latter case the whole issue was mostly upon the question here; also as to the disclaimer; and, that record shows clearly the effect of the elements on pavements laid in one continuous piece, also where divided into blocks by separation at the joints. as well as the great value of Schillinger's invention. It is made to appear by the evidence in that record that before Schillinger's invention Portland cement was imported to this country chiefly for chemical purposes, and exceeded, according to the custom house statistics, not over 400 barrels per annum. From the fall of 1870 to 1871 the consumption of Portland cement for concrete pavements was over 6,000 barrels; and increased steadily to about 20,000 barrels per annum; besides this immense importation numerous factories were started in this country for the purpose of manufacturing Portland cement. Up to November, 1878, the importation of Portland cement reached nearly 200,000 barrels per annum; and it is claimed that such increased importation was due to the increased de-

mand for cement arising from the success of the invention of complainant.

Testimony at great length was taken upon the same question in California Artificial Stone Paving Company vs. Mollitor, and same vs. Perine, cited supra; and testimony to the same effect was taken in the case of Schillinger vs. The Greenway Brewing Company, cited supra.

In treating this question of infringement it may be well to examine the pavements as described in the decisions referred to above.

In Schillinger vs. Gunther, before his Honor Judge Shipman, the defendant's pavement is thus described:

"The ground was prepared by grading to four inches below the final and completed surface of such pavement. Upon the surface of the ground so graded were placed wooden frames, or mould boards, four inches in heighth or thickness. In such frames or mould boards were first formed one-half of the proposed diamond-shaped blocks. The said frames were then removed back, so that their points of separation rested against and accorded with the points of the half blocks of pavement already laid, thus making, by means of the sides of the two completed blocks and the two sides of the frame or mould board, the shape for the diamond-shaped block to be made by the next operation. The materials used and the manner of using them were as follows: A lower course upon the ground as graded was laid, composed of one part of cement, three parts of sand and two parts of gravel or broken stone. (None of the particles of such gravel or broken stone exceeding two inches in diameter.)

"This lower course was laid to the depth of three inches and tamped down. Before the second block is thus laid in its lower course, the lower course of the first block is allowed to become well set. After the lower layer has been thus laid to within one inch of the final surface, the upper layer is then put on, which upper layer consists of one part of cement and one part of fine sand, such upper layer being put upon the first formed block first and shortly after such first block had been

made with the bottom layer thereon. The top layer of cement and sand was then placed upon the bottom layer of the second block up to and against the top layer of the first block, and the laying of the pavement was thus continued. After the laying of the two adjoining blocks, and while the upper material for the second block was in a soft or plastic state, a trowel or other similar instrument was inserted between the top layer of the first and second block through the upper layer, for the purpose of making a separation or joint between them, thus making what is commonly known and designated as a block pavement."

It is thus seen from the foregoing description that the Gunther pavement was substantially the same as defendant's pavement in this case, simply differing in the thickness of the courses and perhaps in the depth of the joint cut or mark. This, however, is not thought to be material so long as it is satisfactorily shown to effect the same purp se, and there can be no doubt of this.

All of the testimony, except that of Bates, is to this effect, and as a matter of fact Bates agrees with the rest of the witnesses with the exception, that he seems to think the separation would be effected by the use of the timber in the manner specified with out the cut. Be this as it may, the question here occurs why, or for what reason, is defendant and infringers in general, so careful in constructing their pavement, to secure the separation of the blocks by using the trowel or cutting instrument between the stones while they are yet soft? The answer is readily found in the facts which have been shown and to which the attention of this Court has been directed.

Schillinger disclosed to the public in his invention and discovery how concrete pavements could be successfully made. The great utility and value of such

invention has been fully demonstrated by the eagerness with which the invention has been adopted, and it cannot be doubted that defendant has appropriated Schillinger's invention in the pavements made, as specified.

In the California Artificial Stone Paving Company vs Perine, and same vs. Mollitor, the method adopted by the defendants was substantially the same as that employed by Gunther with the exception that the marking or cutting with a trowel was not apparently as deep as in the Gunther case.

In his opinion, Judge Sawyer states that:

"In the Mollitor pavement a portion of which was taken up and some of the blocks introduced as exhibits, the thickness of the upper course of fine material is not more than half an inch, and that contains substantially nearly all the strength of the blocks, for the lower course of material in these specimens is of such inferior character that it can be crumbled to pieces by rubbing with the fingers. Even this is weakened by the cutting of joints with a trowel, as before described. If, then, the lower course is of such a crumbling character, either on account of not containing a sufficient quantity of cement, or because of not being properly tamped, and there is no cutting of the joints in that upper course with the trowel, the mere marking of that top layer to the extent to which the marker goes in would probably control the cracking. If the tongue of the marker will cut the upper layer to a depth of one-eighth, or even one-sixteenth of an inch, then the entire thickness of that upper layer being but half an inch, it is probable that the incision would be sufficient to control the cracking of that upper layer; and as that layer is the most substantial part of the block, that marking might, and probably would, be sufficient to control the cracking of the entire block. In my view, therefore, the respondents in these two cases, Perine and Mollitor, have both so constructed their pavements as to gain the advantages secured to the complainant by the Schillinger patent, and by substantially the same means; and they are, therefore, infringers of that patent."

Upon comparing the description of the Mollitor

pavement with the pavement of defendant in this case it will be seen that it differs simply in respect to the condition of the lower course or layer; and, such condition is due simply to the difference in the quantity of cement used. The lower course of defendant's blocks have but little cement, and such care is exercised in building up the edge of the blocks, where the separation comes, that hardly any adhesion occurs between the lower courses. The especial efforts of defendant's counsel seem to have been directed to establishing this as a fact in the case; and, such is also our theory, hence there is no dispute here as to the adhesion of the lower courses. Now, this being true, it must be apparent that the entire strength of adhesion comes between the upper courses; and, the upper courses, being but one half inch in thickness, require but a slight tendency to separate, to secure the benefit and advantages of Schillinger's invention. And, as Judge Sawyer says:

"If the tongue of the marker will cut the upper layer to the depth of one-eighth, or even one-sixteenth, of an inch, * * * * it is probable that that incision would be sufficient to control the cracking of that upper layer * * * * that marking might, and probably would, be sufficient to control the cracking of the entire block."

As to the effect of such cutting with a trowel, the preponderance of evidence is entirely in favor of our theory that such cutting or marking does effect the separation causing the cracking to come to such line and preserving the integrity of the blocks, thereby securing the benefit and advantages of Schillinger's invention.

We insist, therefore, that both claims of the patent are infringed in this, viz:

The first claim is infringed because the defendant's pavement is a pavement laid in blocks, which are so constructed and laid as to be in all respects the equivalent of the detached blocks of the Schillinger patent, and is, therefore, as to the patent, "a concrete pavement laid in detached blocks or sections substantially in the manner shown and described;" *i. e.*, blocks having free joints as set forth in the patent.

The second claim is infringed because the trowel or the joint marker inserted between the blocks is the equivalent of the tar paper. Both make the divisions which are necessary to control the cracking, and facilitate the taking up and relaying of the blocks "without disturbing the adjoining sections," *and neither does anything else*, both are interposed during the process of formation, and *cannot be interposed at any other time.*

The defendant Hurlbut states that Portland cement commences to set as soon as water is added to it (See p. 138, Record.) Hurlbut says:

"Just as soon as there is water put to it, we have to use English cement; after being mixed and wet it has to be put in place immediately. In the space of half an hour it would be worthless after water had been put to it."

In setting, Portland cement becomes hard. To make it possible to cut it, the cutting must be done while the cement is soft and plastic.

Perkins testifies that he has frequently seen blocks removed from defendant's pavements. What, besides such cutting or separation enabled the removal of such blocks without injuring the adjoining blocks which remained? What possible good does the tar-

paper do in Schillinger's pavement, except to effect the division or separation of the blocks, and thereby prevent other divisions from occurring in the shape of irregular cracking and facilitating the removal of the blocks without injury to the adjoining blocks? What possible kind of beneficial result follows the use of tar-paper divisions which does not result to Hurlbut with greater or less degree by virtue of the divisions made by the trowel or joint marker? It seems to be clear that such means must be the equivalent of the tar-paper, because it is well known that the method of controlling the line and place of breaking in stone cutting, by cutting a shallow line in its surface, has been known and used by stone masons from time immemorial.

There is no other theory which will reconcile the use of the trowel or joint cutter by the defendant, excepting that it is done to secure the benefits and advantages of Schillinger's invention.

Upon the question of law which here enters consideration, we respectfully refer the Court to the following high and ample authority:

Grant vs. Raymond, 6 Peters, 218..
Ames vs. Howard, 1 Sumner, 482–485.
Blanchard vs. Sprague, 3 Id., 535–539.
Davoll vs. Brown, 1 Wood & Min., 53, 57.
Parker vs. Haworth. 4 McLean, 372.
Leroy vs. Tatham, 14 How., 181.

It is in evidence here that concrete pavements made in a continuous mass were known to the art, and were not popular for the reason specified; and the defendant, Hurlbut, frankly admits that such

pavements would not be a success. (See p. 149 Record.)

It is also in evidence here that pavements laid in sections without any attempt at separation were also failures.

The complainant Schillinger constructed such a pavement in the City of Washington in the fall of 1874, there was some 2000 or 3000 square feet in that pavement and such pavement was not accepted, and Schillinger himself was satisfied that it would not do. The pavement was badly cracked and when the joints had opened or cracked, the line of such crack was crooked and irregular. When the pavement was removed the pavement was found to be an adhering or continuous pavement. It was due to this fact that Schillinger filed the disclaimer of March 1st, 1875. (See p. 9, Complainants' Exhibit Gunther Record on Amended Answer).

It is submitted that it is clearly proven in this case that defendant Hurlbut has infringed the Schillinger patent.

NATURE OF THE DEFENCES.

In considering the defences relied on, the brief and argument submitted in the court below are taken as the substance of the probable presentation here, by the appellant.

IS THE SCHILLINGER INVENTION ANTICIPATED?

The anticipating patents introduced by the defense consist of, The English Patent to Auguste Chesneau, No. 350, of the year 1852, for paving, English patent of De La Haichois No. 771, of the year 1856, for paving. English patent to D'Harcourt, No. 7991, of the year 1839, for paving. English patent to Claridge, No. 7489, of the year 1837 for cement for paving and building purposes. English patent to Coignet, No. 2659, of the year 1855, for artificial stones and cement. U. S. patent to Horace P. Russ, No. 5475, dated March 14th, 1848, and U. S. Patent to A. VanCamp, No. 93142, dated July 27th, 1869, for improved concrete pavement.

These patents, with the exception of the Van Camp patent, were introduced by the defence in Schillinger vs. Brewing Company, *Supra*, and were held by the Court in that case as not affecting the Schillinger patent. The defendant here has produced and examined Mr. Bates as an expert witness in relation to the above mentioned patents and his testimony will be found at pp. 88, 98, Record. Upon cross-examination Mr. Bates admits that the Claridge patent is the best exemplification of the anticipating exhibits. (See cross-interrogatory 16 and A., pp. 95 and 96, *ibid.*)

And that it does not anticipate the first claim of the Schillinger Re-issue, (See 17 and A., p. 96, *ibid.*

Mr. Bates' idea is that Schillinger's pavement does not involve invention in the light of what is shown in the Claridge patent. Mr. Bates testifies at cross-interrogatory 20, p. 96, *ibid*, that the Russ patent is

as fair an exemplification of the anticipating patents which in his opinion anticipates the Schillinger invention as summed up in the second claim thereof as any of the prior English patents introduced in this case by the defense. At cross-question 21 and 22 it is shown by Mr. Bates that the Claridge patent and the Russ patent are substantially what Judge Shipman sets forth in his opinion in Schillinger vs. Gunther, *supra*.

The method described in the Claridge patent coinciding with what Judge Shipman states as constituting the condition of the art prior to the invention of Schillinger; and the Russ patent being the same Russ patent which Judge Shipman held did not anticipate the Schillinger Re-issue. Upon this proposition the Court is respectfully referred to the opinion of Judge Shipman to Complainant's Exhibit Gunther Record, and to the testimony of Mr. Bates, cited above.

In the Brewing Company case, upon the question of the bearing of these anticipating patents upon the Schillinger invention, Mr. Justice Blatchford, in formulating the opinion of the Court, states:

"The Claridge pavement is not a concrete pavement and is not formed in detachable blocks. The Chesneau pavement is formed of a compound which is not such a concrete as that of Schillinger. It is not composed of blocks made detachable to control the line of cracking, but sections of the pavement are set in frames and removably inserted in the surrounding pavements, so as to allow access to gas and water pipes. In the Coignet patent there is not shown a concrete pavement made in detachable blocks, in the manner described in Schillinger's patent. In the De La Haichois patent there is no pavement formed in detachable blocks by joints. In the D'Harcourt patent there is nothing to indicate that one section can be removed without

disturbing the adjacent sections. In the Austin patent the pavement is made of wooden blocks with intervals of an inch and a half in width, filled with cement or concrete. The Huestis patent does not show a wearing surface of concrete, or a concrete pavement formed in detachable blocks by joints. The Russ patent shows a concrete foundation for a stone pavement without joints and having removable panels, consisting of frames filled with concrete, to be lifted out to give access to water pipes."

The testimony of A Faber Du Faur, on behalf of complainants, disposes of the anticipating patents and shows clearly that there is absolutely no foundation for this defense. His testimony is found at pp. 202 to 226 inclusive, of Record, and it is earnestly commended to the attention of this Honorable Court.

As to the Van Camp patent, it is not thought to be worthy of much attention at our hands, for the reason that it is substantially similar to the Huestis patent in the Greenway case. However, testimony has been introduced on the subject by the defendant and testimony to meet the same has been introduced in reply thereto.

Mr. Bates says, see pp. 91–92, Record; that the VanCamp patent describes a pavement made of asphalt concrete, which in certain situations is laid in separate blocks or sections which can be taken up for purposes of repair. In some cases the blocks are laid in moulds. The moulds remaining as a part of the pavement, in which case the blocks of concrete have a foreign substance in the joints between them.

The patent itself shows clearly that when the blocks are made in moulds they are formed substantially like the asphalt blocks used for the well-known Asphalt Block Pavement, and are to all intents and

purposes strictly analagous to bricks, artificial stone, tiles, or wooden blocks, which are prepared and then brought to the place where they are to be laid and put down in the usual manner. When the blocks are left in the mould they do not present a uniform wearing surface of concrete and do not constitute a concrete pavement formed in detachable blocks by joints.

Complainant's expert Du Faur, states, at page 205, Record, as follows:

"I do not, however, find it stated that such blocks should be formed on the spot where they are to remain, nor that such blocks should be formed of Portland cement and gravel or sand. The VanCamp patent does not disclose the invention referred to in complainant's patent."

The anticipating patents introduced here by the defense and the models thereof, the evidence of Mr. Bates, explaining the bearing and effect of such anticipating patents and models is fully met on behalf of complainants by the testimony of complainant's expert DuFaur, by the evidence of complainant's expert Laass, found at pp. 20 to 25, complainant's record, in Schillinger vs. Greenway, see complainant's exhibit Greenway record, p. 245, and by the ruling of his Honor Mr. Justice Blatchford in the last mentioned case. It seems clear that this defense should be overruled.

IS THE SCHILLINGER PATENT INVALID BECAUSE RE-ISSUED?

The defense that the re-issue is not for the same invention as that shown and claimed in the original patent, is thought not to be tenable; indeed, this de-

fense has not been urged with much earnestness. The disclaimer filed by Schillinger, on March 1st, 1875, virtually disposes of this defense, since whatever objectionable matter there was interpolated in by the re-issue of the original patent, has been removed by the disclaimer. It has been generally conceded in the extensive litigation in the Circuit Courts that this is not an objectionable re issue. The principal point the defense makes against the Re-issue, refers to the construction or scope of the claims. If it be true that the first claim is susceptible of a somewhat broader construction than that of the original claim, it is not necessarily invalid; for it must be remembered that complainant's original patent was granted July 19th, 1870, and the Reissue was granted May 2d, 1871, within ten months after the issue of the original. The doctrine of Laches as laid down in Bridgeport Brass Company vs. Miller has no application here. This Court has decided, in Gage vs. Herring, that the invalidity of a claim in a Re-issue does not impair the validity of a claim in the original patent which is repeated and separately stated in the Re issued Patent. And further, that although it may be true that the first claim of the Schillinger Re-issue was expanded upon Re-issue, the disclaimer has cured such defect, leaving the first claim to be for such pavement as was in fact invented by Schillinger, and differing only from what was originally claimed, in that the restriction or limitation to tar-paper as the separating element is discarded.

There were no intervening rights in favor of other patentees, and there is absolutely no proof that any

one embarked in the business of constructing concrete pavements, using the infringing methods between the dates of the grant of Schillinger's original patent and his application for the Re-issue, hence this Re-issue is entirely free from the obnoxious features which have occasioned this Honorable Court to express its disapproval in the numerous recent decisions relating to Re-issued Patents where an alleged inaccuracy was made the excuse or pretence to Re-issue for the sole purpose of enlarging the scope to scoop in valuable improvements made by others. This disclaimer makes it perfectly clear that the Schillinger Re-issue is good and valid.

AS TO PATENTABLE NOVELTY.

The defense that Schillinger's pavement does not involve invention cannot be maintained. The testimony in the Gunther case, and in the Gunther case on amended answer shows clearly all that is shown against the Schillinger invention; and more in fact than is shown in this case. This question was fully and carefully considered by the Court, and upon such consideration it was held that invention was involved upon precisely the same state of facts. In the Brewing Company case the Court reached the same conclusion, and while these facts are entitled to great weight, counsel calls the attention of the Court to the fact that it is conceded that con-

crete pavements made in a continuous mass possess no utility, and are wholly impracticable; and as has been shown, nothing in the prior condition of the art shows or points to a practical solution of the difficulties to be overcome in making a successful concrete pavement so that up to 1870 but a small quantity of Portland cement was used in this country and concrete pavement for outside work was practically unknown, between 1870 and the fall of 1871. The consume of Portland cement for concrete pavements alone was over 6000 barrels, and has increased up to the year 1878, until it reached about 200000 barrels per annum in addition to the cement manufactured in this country; and the further fact that at the present time these pavements are found in every city in the land, and as is well known they have been adopted for use in places where the expense of paving does not enter into consideration, as, around the Capitol grounds in Washington, and other places where a handsome pavement is desired. It cannot be doubted that something more than mere mechanical skill was involved in bringing out and adapting what existed before to the perfected popular form of the present concrete pavement. As Mr. Justice Blatchford says, in speaking of the defects in the pavements of this class known to the prior condition of the art, "no one remedied this defect be-
"fore Schillinger. His invention is simple, valuable
"and patentable."

See Schillinger vs. Brewing Company, supra.

THE DEFENSE OF PRIOR PUBLIC USE.

Testimony of prior public use has been introduced into this case in the defendant's record taken in Schillinger vs. Philip Best Brewing Company. This testimony was stipulated in by counsel with the understanding that it should have the same force and effect as if retaken in this case.

The testimony of the defendant Hurlbut, of his foreman John Miller, his workmen George Witt, John Pietsch, Klaus Miller, and of Charles Row and Michael Botzler. These witnesses, or some of them, testify to using and seeing used in Germany a process of constructing concrete pavements somewhat similar to complainant's method. This evidence relating to use in Europe was duly objected to as incompetent, unless described in a patent or printed publication produced in evidence in the case. (See p. 122, Record; also at p. 166, *ibid.*) Nothing of the kind was produced, and it is only thought necessary to call the attention of this Honorable Court to the objection to this testimony. It is well settled that such proof of prior use in a foreign country is inadmissible. Warwick Manufacturing Company vs. Steiger, vol. 17 Federal Reporter, p. 250.

The Court is familiar with section 4923 of the Revised Statutes relating to use in a foreign country

and it is not thought necessary to cite further authorities in support of this proposition. The witness Botzler also made a malt floor in Chicago, he claims in 1869, but the time is not definitely shown, and, moreover, this floor had no separation of the blocks, and was not made two years before the application on which Schillinger's original patent was issued; hence, this evidence is immaterial and irrelevant; moreover, the complainant Schillinger testifies that he conceived his invention in August, 1869. (See Q. and A. 2 and 4, 227, Record.) The conception bore fruit as appears from the fact that Schillinger perfected the same and obtained a patent therefor, hence Botzler's testimony fails to make a case of prior invention against the Schillinger patent. The witness Charles Row describes a malt floor constructed in Baltimore in '57 (See page 162, Record), but at p. 164 he says the malt house floor in Baltimore was made in one solid mass, which seems to have been the character of all prior concrete pavements. There is absolutely nothing in the testimony of any of these witnesses which in anywise affects complainant's rights here, hence no attempt was made to rebut the allegations of prior use as disclosed by the Best Record, with the exception of the statement of Botzler, which is successfully overcome by the evidence of Schillinger establishing prior invention in favor of the patentee.

Argument to show that defendant has failed to establish a case of prior use is entirely unnecessary, and this defense has clearly failed.

The record in the Best Brewing Company case fairly shows how diligent infringers have been in their efforts to rob complainant Schillinger of his invention, and it can be justly said that no patent at the present time has been more persistently pirated upon than that of complainants. The invention is of great practical utility and value; and all that is required to start the business successfully is sufficient means to provide the Portland cement and other materials and the few inexpensive tools, consisting of a few pieces of hemlock scantling, a common tamp, a trowel and a piece of board planed true to be used as a straight edge. With this apparatus the invention can be successfully utilized, and the Court will readily see the difficulty which exists to check infringers in their persistent efforts to appropriate the Schillinger invention. In all parts of the country suit after suit has been commenced to protect the patent and the complainant Schillinger's licensees, and wherever such suits have come to final hearing the patent has been invariably sustained and injunctions granted to restrain further infringement excepting in a few of the later cases where it was held that the pavements were laid in a solid mass. The litigation has been exhaustive and expensive, and but little profit has accrued to the inventor and his licensees in consequence of such litigation; and it is respectfully submitted that the equities of this case demand at the hands of this most honorable Court an early decision fully sustaining the appellees here.

The record in Schillinger vs. The Best Brewing Company was by stipulation introduced into evidence in the case of Schillinger vs. The Greenway Brewing

Company, and the testimony therein was considered by Mr. Justice Blatchford, whose comments are as follows, viz:—

"Reference is made to the testimony introduced from the case of Schillinger vs. The Best Brewing Company in the Eastern District of Wisconsin. The testimony was taken in November, 1882. So far as it refers to prior use in Germany, not shown in a patent or printed publication, it was duly objected to in this case and must be excluded. As to the cement malt floor which Row laid in Baltimore 25 years ago, he shows that it was not made in sections detachable by free joints. The testimony of Botzler, as to a prior malt floor laid by him in Chicago is too indefinite to amount to sufficient evidence to defeat a patent."

It is thus made to appear that all questions involved in this present case were also passed upon by the Courts in the other cases cited, with the exception as stated, as to the VanCamp patent; and it is not seen that anything new or different is presented for consideration by that patent.

The question of infringement by the defendant in this case is really the only question of any importance here; and that question is restricted by the proof to defendant's concrete flagging; and upon consideration it is apparent that defendant's method of constructing such flagging is substantially identical with that employed by Gunther; by Molitor; by Perine and by the Brewing Companys in the cases which they defended.

It is shown by the testimony of Salisbury, of Perkins, of Hall, Schillinger, the defendant himself, his workmen, and by the photographic exhibits introduced on behalf of the Complainants that such flag pavements constructed by the defendant are clearly concrete pavements in which *free joints* are made, or in other words, in which the blocks are separated by

the insertion of a trowel or joint marker in the process before mentioned, and that the benefits and advantages of Schillinger's invention are obtained by the method employed. It is therefore respectfully submitted that complainants have fully established their case.

AS TO DAMAGES.

It is clearly proven in this cause, that all of the utility and value of Defendant's pavements is due to, and depends entirely upon the use of the Schillinger invention; hence, it is respectfully contended by Counsel for Appellees that the proper measure of damages is the net profit actually realized by the defendant from the making and sale of his concrete flag pavements, and the Appellees acquiesce in the rule as laid down by his Honor, Judge Blodgett, in his opinion on Defendant's exceptions to the Master's report.

"If the Court awards to the Complainant all the profit which the Defendant has made by the use of the Complainant's Patent, it seems to me the latter cannot complain."

Record, p 26.

Upon this question we respectfully refer the Court to the following authorities:

Tilghman vs. Proctor, 125 U. S., 136.

Brady vs. The Atlantic Works, 3 B. & A., 577, 15 O. G., 965

"Gains and profits are the proper measure of damages in equity suits, except in certain cases where the injuries sustained by the infringement plainly exceed the profits realized by the respondent."

Cox vs. Griggs, 2 Fisher, 174.

"Whatever benefit Defendants have received from the use of plaintiff's invention is a measure of actual damages unattended with

difficulty, because it is restoring to the plaintiff what justly belongs to him, and what the Defendants have deprived him of"

Hays vs. Sulsor, 1 Fisher, 537, 1 Bond, 279.

When ascertainable, the Defendants' profits are the proper rule of damages.

Bell vs. Daniels, 1 Brown, 212, 1 Fisher, 372.

Wayne vs. Holmes, 1 Bond, 27, 2 Fisher, 20.

The general rule of damages is the amount of profits made by the person infringing the Patent from the unlawful use of the improvement.

Serrell vs. Collins, 1 Fisher, 289.

Curtis on Patents, Section 338.

The measure of damages is the amount of profits actually received by the defendant.

Lowell vs. Lewis, 1 Mass., 184.

Whittemore vs Cutter, 1 Gall., 139.

It is contended that Judge Blodgett decided this case in accordance with the above principle. In his opinion upon the exceptions to the Master's Report, p. 26 Record, he says:

"The exceptions to the Master's award of damages are, therefore, sustained; but inasmuch as the facts found by the Master furnish a basis by which the Court can fix the damages, I find the amount to be $2,836.36, being the defendant's profit at the rate of four cents per square foot."

This finding by his Honor Judge Blodgett was based upon the sworn statement of the defendant produced by him before the Master in Chancery on the taking of testimony in regard to the question of

damages, and put in evidence by the Complainant's Counsel, and on the testimony in the record principally of defendant and of defendant's witnesses. By this statement and testimony it appears that the defendant had laid 70,909 square feet of pavement infringing Complainant's Patent at an average price of twenty cents per square foot; that defendant's profit thereon was twenty per cent. of four cents per square foot, which on said 70,909 square feet would amount to $2,836.36, which was found due to Complainants by Judge Blodgett.

At page 595 of the printed record, Defendant's Counsel calls attention to the statement furnished by said defendant purporting to show the concrete flag pavement made by him, and the corporation of which he is president, from August 26, 1882, to May 20, 1884, the time in question, and asks him to state whether it is a complete statement of all the work so done during the time which it purports to cover. Defendant answers:

"I believed it was at the time. * * * * * I find some little work done I had overlooked in the former statement, so I corrected the statement as near as I could make it."

"Q. Is that correction contained in this other paper which you have now produced?

A. Yes."

This statement and other paper were at that time offered in evidence by Complainants' Counsel, and marked "Defendant's statement." They are as follows:

"Statement of all concrete flag pavements made by J. B. Hurlbut and the corporation of which he is president from August 26, 1882, to May 20, 1884, the joints of which were marked during the process of formation.

[Then follows a detailed statement of 67,189 feet laid down for some sixty persons with the price paid by them therefor.]

The books do not show, and I have no other means of ascertaining the exact cost of the separate pieces of work or the exact cost of the entire work. The entire profit of the whole work including profit on material and labor has been from fifteen (15) to twenty (20) per cent. of the entire sum received, as nearly as I can estimate the same from a careful examination of the books.

J. B. HURLBUT.

Subscribed and sworn to before me this 23d day of May, A. D., 1884.

O. W. BOND,
Notary Public."

(Notarial Seal.)

The other additional statement produced by defendant is as follows:

"DEFENDANT'S STATEMENT.

Statement of work that was overlooked in first estimate, being laid in connection with other work where no marking was done:

[Then follows a detailed statement similar to the preceding statement of 3,720 feet laid down for various persons.]

J. B. HURLBUT."

These statements are found at Pages 598 to 600 of the record.

At Page 596 of the record just after questions heretofore quoted on the production of these statements by defendant, defendant testifies as follows in answer to the questions of his own Counsel.

"Q. In laying the payment included in this statement and addenda thereto how much did you, on average, charge per square foot?

A. The price is mainly twenty cents, I believe, in that work.

Q. That would be about an average price—twenty cents a square foot?

A. There is some little done for less—at seventeen cents, and some little at twenty-two perhaps.

Q. So that twenty cents would probably be a fair average for the work done?

A. Yes.

Q. In laying pavement at an average of twenty cents per square foot how much of that was net profit?

A. From fifteen to twenty per cent.

Q. From 15 to 20 per cent. would be the net profit?

A. Yes.

Q. Which one of these figures would most nearly represent the net profit per square foot?

A. Which one of these do you mean?

Q. You said 15 to 20 per cent. would be the net profit. Now which one of those two figures would in the majority of cases, in your opinion, represent the net profit?

A. Well, I should judge 20 per cent. would represent the most probably two-thirds of the cases."

At Page 628 of the record T. B. Hurlbut a witness recalled on behalf of the defendant being examined by Defendant's Counsel testifies as follows:

"Q. What is the average cost to you of a good cement sidewalk, such as you have been making?

A. Where it is done here in the city we calculate it will cost about sixteen cents a square foot. * * * * * * On the average, we calculate it will not be much different from sixteen cents a square foot."

Aforesaid testimony of defendant and his witness Hurlbut is accepted by Complainan s as substantially settling the rate of profit obtained from the work in question.

Certain witnesses of Complainant in addition have testified to the same effect.

A. H. Perkins testifies under oath in reply to Complainant's Counsel as follows:

P. 581, Record.

"I will ask you to state what profit your firm made in the laying of the Schillinger pavement per foot?

A. We calculated at least 33 per cent. That is our ordinary profit on the work; at least that.

Q. Thirty-three per cent. per square foot?

A. Yes, sir; or yard; as you please.

Q. What was your price per foot on which you made 33 per cent. profit in laying the Schillinger pavement?

A. Twenty cents."

C. E. Hall, a witness on behalf of the Complainant, testifies as follows:

P. 627, Record.

Mr. Bond, on cross-examination, asking him how much royalty he could afford to pay on the Schillinger pavement at 20 cen s per foot cost to the party for whom it was laid.

"Well, I know what I could afford to pay.

Q. What could you afford to pay?

A. I could afford to pay any where from four to eight cents and still make a profit.

Q. At 20 cents a foot and make a good job?

A. Yes; I know what the material costs. I know what it costs to lay sidewalks, especially when it comes to laying imitation of flags.

Q. How much profit would you make at 4 cents?

A. Anywhere—it would depend some on the locality, but I could haul it anywheres in the city here if I did not have to haul my materials more than one mile. I could lay it anywhere in the city here at fourteen cents and make two and one-half cents a foot."

Complainants' Counsel respectfully submits that the rule of damages adopted by his Honor, Judge Blodgett, in this case is just both as a decision of law and of fact. This, they feel is further fully established by them by the authorities above cited, and by the testimony in the record referred to by them, particularly the testimony of defendant and his own witness.

It is most respectfully submitted that the decision of the Court below should be affirmed.

GEORGE W. HEY,

Of Counsel for Appellees.